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This method of removing the ground glass frame from contact with the Camera and keeping the Plate Holder in position during exposure, is superior to all other methods. No better evidence of this fact is needed than the attempts of other manufacturers to copy it.

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OUR CAMERAS

have a greater focussing capacity (length of bellows) than any others, thus enabling the operator to use any make or style of lens without extension. Dealers in photographic apparatus say they are not asked to exhibit our Cameras because they are found to meet all the requirements of the photographer, whether amateur or professional.

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is made on a system of interchangeable parts which are never found to vary. The above facts of superiority in utility in connection with the beauty of style, designs and finish, and superior quality of workmanship, place BLAIR'S CAMERAS ahead of all others. No camera manufactory in the world can show in stock a variety of styles and designs of light weight cameras equal to those to be found at our factory and warerooms.

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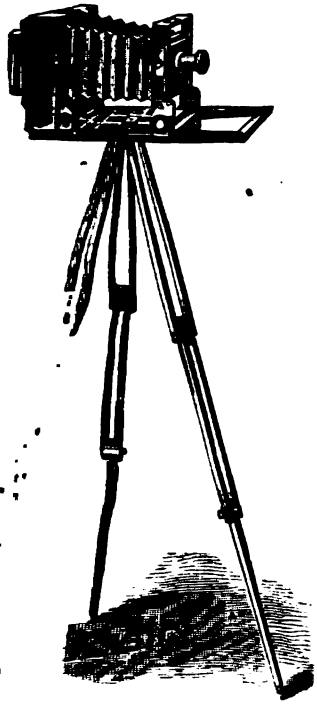
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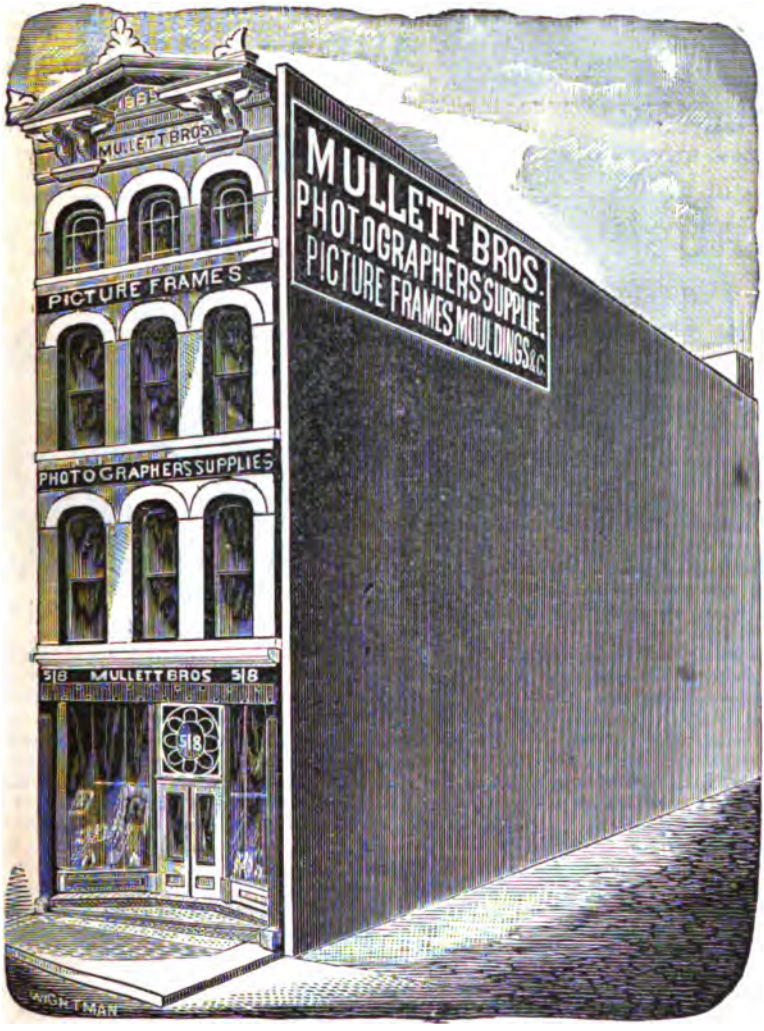
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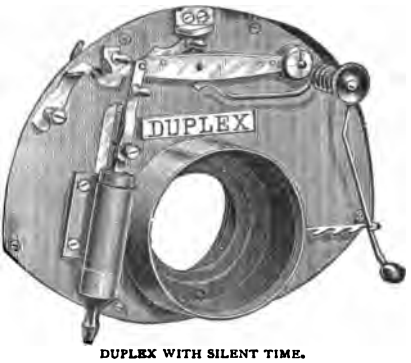
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DUPLEX TRIPLE IMPROVED.



DUPLEX WITH SILENT TIME.

The Prosch Rapid is capable of making exposures so rapid as to test to the utmost the skill of the most expert operators to develop. It is only for instantaneous work, such as taking horses at most rapid gait; athletes running, jumping; divers, etc., etc. Although operating between the lenses it is entirely different from the Duplex. Made in two sizes: No. 1, 1-inch opening, price, $18; No. 2, 1⅛-inch, $22.

The Duplex Stereoscopic fills perfectly the want of a time and instantaneous shutter for Stereoscopic work. It consists of two Duplex Shutters on one frame, operated by one lever and one release, and consequently gives two identical exposures. Made in two sizes: No. 1, ¾-inch opening, $18; No. 2, ⅞-inch opening, $19.50. Lenses are arranged at 3¼ inches from centers; but this will be increased, if ordered, up to 3¾ inches for $1 additional. Rotary Stops, $2; Flange Collars, when required, 75 cents. Silent time attachment, $1.50; combined with slow instantaneous, $2.

The Duplex Detective is a reliable, compact and efficient Shutter for Detective Cameras, which can be used for both time and instantaneous work. Release for instantaneous is by a push trip (pneumatic if desired). Time exposure mechanism is same as silent self-setting time to regular Duplex Shutters, by which instantaneous exposures can also be made by pressure to pneumatic bulb. Price, including fitting to Camera and Rotary Stops, $15.

THE EVER POPULAR DUPLEX SHUTTER still retains its lead of all others, whether of home or foreign production. The Rotary Stop is considered by an army of users an indispensable adjunct to the shutter, likewise the silent, self-acting time, and slow instantaneous attachment, which operates shutter by direct pressure of air through pneumatic device.

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Openings, inch...	⅝	¾	1	1⅛	1⅜	1⅜	1⅝	1⅝	2	2¼	2½	3	3½
Price.....	$11.50	$12	$12.50	$13	$13.50	$14	14.50	$16	$19*	$20*	$22*	$24*	$27*

* Including silent time attachment.

Rotary Stops up to No. 1, $1.50; above that, $2. We do not make Rotary Stops for sizes larger than No. 2A, except by special agreement. Silent time attachment same prices as Rotary Stops.

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Sole Agents for the United States.

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Very respectfully, (Signed) I. M. BRANDTCH.

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Yours, etc., (Signed) READ BOOK.

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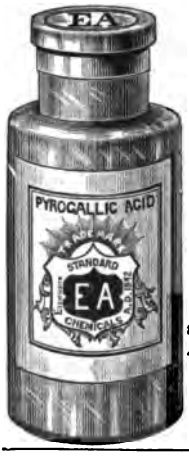
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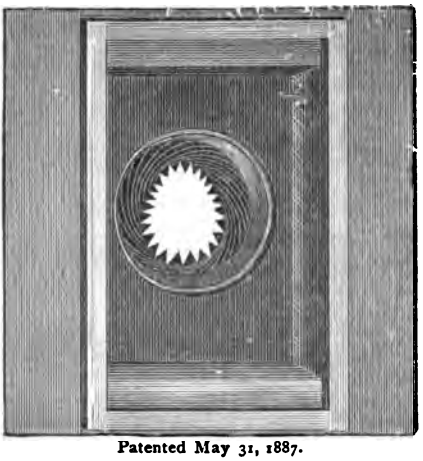
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TO PROGRESSIVE PHOTOGRAPHERS.



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THE NEW MAGIC VIGNETTER,

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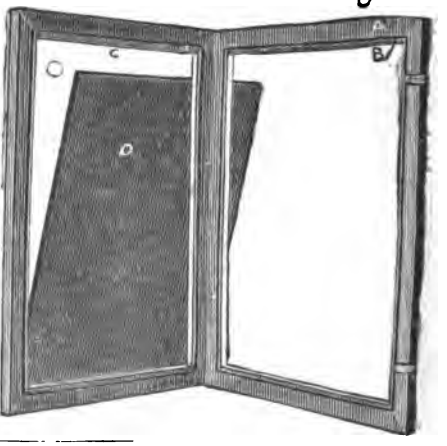
Producing the Black Background or Ebony Photographs.

Hundreds of these Vignetters are now in use, GIVING UNIVERSAL SATISFACTION. They can be easily adjusted to any camera, and require no more trouble or expense than making plain photographs. Every progressive photographer should have one. Its work will attract attention in your case and increase your business.

Every one guaranteed. Price, each, $8. Sample photographs made with it sent on application.

Kuhn's Sensitized Paper Stretcher and Dryer.

Patented April 13, 1886.



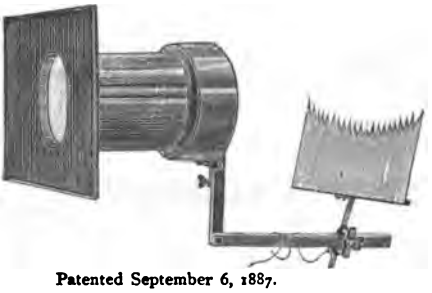
Paper dried with it lays perfectly flat, and therefore better prints can be obtained.

You can also cut your paper either lengthwise or crosswise of the sheet, as it neither stretches nor shrinks afterwards.

In addition, it is very desirable for handling Bromide Paper.

PRICE.

18 x 22 size, each, -	- $1 50
20 x 24 " " -	- 1 75



Patented September 6, 1887.

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Improved Vignetting Attachment.

FOR VIGNETTING THE NEGATIVE.

Light, Strong and Durable.

It is perfectly reliable and quickly adjusted o any lens by the means of a thumb-screw. It can be raised or lowered at will to any position desired by the operator, by simply pulling a cord, without leaving his position behind the camera. Price, each, $3.50.

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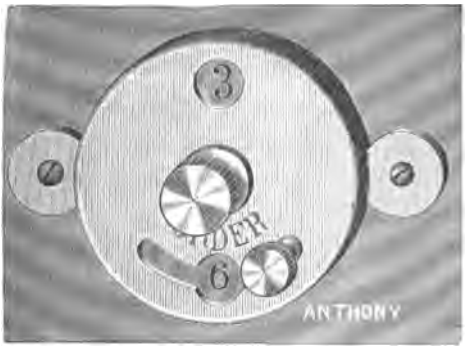
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PATENTED.



PATENTED.

This neat article can be readily attached to the door of any printing frame, and has two dials, one of which shows how many prints are to be made from the negative, and as each one is removed, it is recorded on the other dial. By this means the count can always be kept correctly. They are all nickel plated, and the cut shows exact size.

Price per dozen, - - - - - - - - $2.00

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The Reeves Magnesium Flash Lamp.

(PATENT APPLIED FOR.)

THIS new and unique lamp renders it possible to make fully exposed negatives at night with results equal to and not distinguishable from daylight pictures.



Reference to the cut shows its simplicity and easy method of using. The rimmed back, 7 x 9½ inches in size, holds horizontally two wicks, the pan below has other wicks or pads of cotton wool, surrounding the bowl of an ingeniously shaped brass blow-pipe, to which is attached rubber tube and bulb. To use it the pipe is charged with powdered metallic magnesium, a small quantity of alcohol poured on the wicks, which when lighted give a very large flame (the width of the back and several inches higher), pressure on the bulb fires the magnesium through the blaze, the result being a flash of tremendous size and actinic power. Then the back, which is hinged, is shut down, at once extinguishing the blazing alcohol.

There is no smoke, and there being no reservoir for alcohol, there is absolutely no danger of explosion.

The bowl of the blow-pipe is so designed that it spreads the magnesium in a fan-like shape through all parts of the flame, using only about twelve grains of powder.

Inside the hinged back are hooks to fasten the wicks, also a false back with curved bottom to convey the superfluous alcohol from upper wicks into lower pan. The back has spring to set it at any angle; there is a guard or fender to blow pipe to prevent it overheating, and cover for same. The whole is well and strongly made throughout of Russia iron, neatly mounted on metal-covered board, packed in box.

The results attainable with this lamp are simply astonishing; it will illuminate the largest sitting-rooms, so that the smallest detail at furthest end of room are well defined on negative. The flash being so large and well diffused there are no sharp shadows; for the same reason the light is not so trying on the eyes as when the flash proceeds from a point, as with the explosive compounds.

Full instructions inclosed with lamp.

Price complete, including rubber tube and bulb, wicks, etc. - $3.00

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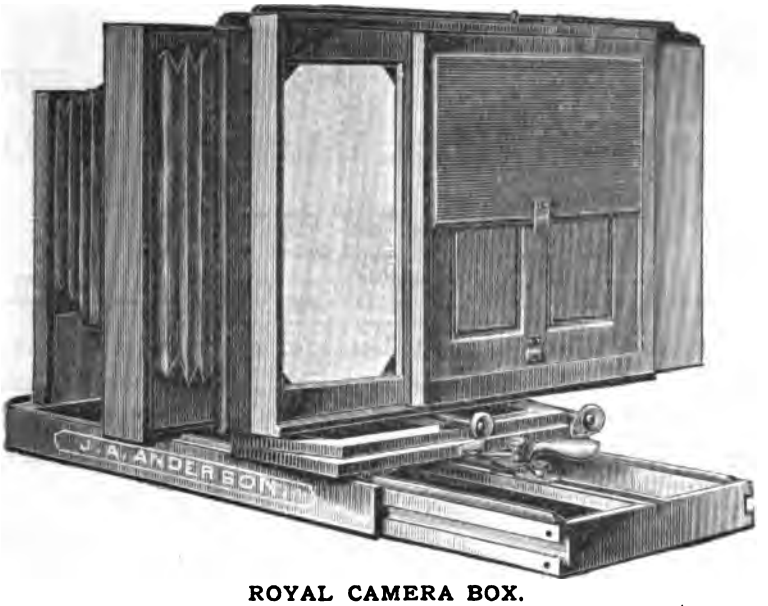
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EUREKA BURNISHER

FOR IMPARTING A BEAUTIFUL FINISH TO PHOTOGRAPHS.



THE superior qualities of this Burnisher consist: first, of first-class workmanship in its construction; second, the Roll can be turned back in a second from the Burnishing Tool, so that the Tool can be dressed or cleansed, and the Roll be immediately replaced ready for operation without having to handle hot plates, etc., as in the other burnishers.

It has also the removable Burnishing Tool patented by W. G. Entrekin. The Burnisher can be heated with gas, coal oil, or alcohol. Another great advantage: it will produce a beautiful satin finish to photographs, and any boy can work it.

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PATENTED.



The Eclipse Album, with interchangeable leaves, is the most perfect manufactured. Each card mount is *distinctly* independent, and may be taken out or replaced without having to disturb any other leaf or part of album. They are handsomely finished in Morocco half leather bound, with gilt title and enclosed in a neat box.

Extra cards for Eclipse Album may be had if desired.

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WITH TWENTY-FOUR COLLINS' CARDS.

No. 1.	6 x 7 cards, for	4 x 5	photographs, - - -	$2 00
" 2.	7 x 10 "	5 x 8	" - - -	2 25
" 3.	10 x 12 "	6½ x 8½	" - - -	3 50
" 4.	11 x 14 "	8 x 10	" - - -	4 00

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FOR USE IN ABOVE.

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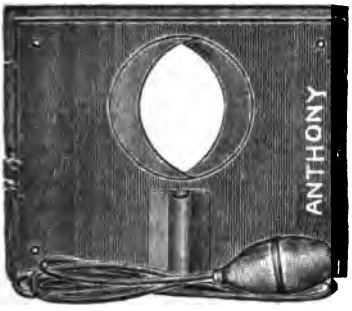
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The E. M. B. Pneumatic Gallery Shutter

(PATENTED APRIL 20, 1886)

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We having acquired possession of the Cadet patent for pneumatic working of gallery shutters, are enabled to offer this as the only shutter guaranteed not liable for infringement of this patent. Price, $4. Larger sizes to order.

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The patent gas jet is connected with the house gas by a rubber tube, lighted and turned apparently out. Inside the outer case is a fine jet, which is not extinguished, but emits no light. The Bromide Paper is placed in the printing frame, which is then put in position. Turn the gas on by the stop-cock in patent jet, for the proper length of time, then shut same off. The operation can be repeated as long as desired without relighting the jet. In the base-board are holes which admit of bringing the print nearer the light. These have been calculated to a nicety. If one second is necessary in the row nearest the jet, two seconds will be required in the next row, three in the third and four in the fourth. The apparatus is suited for 8 x 10 prints and under, and serves equally well for printing transparent positives.

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6½ x 8½	1 00	24 x 30	13 50
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IN ROLLS (10 Yards).

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10 inches wide	$0 56	20 inches wide	$1 12
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EXTRA LARGE SIZES.

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33 inches wide	$1 85	37 inches wide	$2 10
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These sizes are larger than anything that has ever before been attempted. ANTHONY'S PATENT RELIABLE PAPER is coated by the most perfect and the largest machinery ever designed for the purpose, and is warranted uniform in quality and capable of producing the most beautiful results photographically.

The grades are H. G., heavy grained; H. S., heavy smooth; L. S., light smooth, all at one price.

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NOTICE.—Our Bromide Paper is made under U. S. Letters Patent to T. C. Roche, dated February 8, 1881, No. 241,070. We have commenced a test suit in the United States Circuit Court for the Southern District of New York, against the Eastman Dry Plate and Film Co., George Eastman, Treasurer, and the Scovill Mfg. Co., in which we claim that the paper manufactured by the Eastman Co. is an infringement of our patent, and the Scovill Mfg. Co. are sued as sellers of it. This suit we shall press as vigorously as possible. In the meantime we deem it our duty to ourselves and to the trade to caution all persons against infringing our patent, as dealers are liable equally with the manufacturers for both damages and profits.

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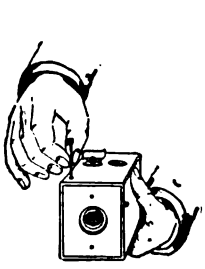
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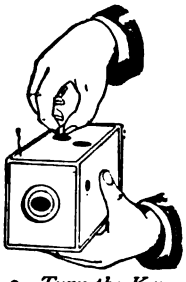
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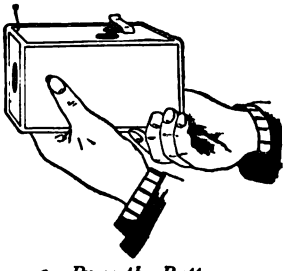
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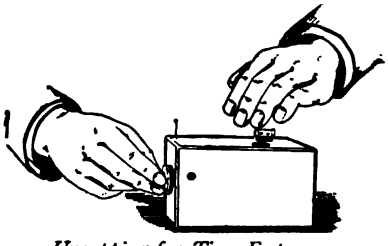
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ANTHONY'S
Photographic Bulletin.

Prof. CHARLES F. CHANDLER, Ph.D., LL.D., *Editor.*
ARTHUR H. ELLIOTT, Ph.D., F.C.S., *Associate Editor.*

JANUARY 12, 1889. Vol. XX.—No. 1.

HALF A CENTURY—1839-1889.

As the years roll by, and we stop a moment to take note of the achievements of science, we can with difficulty only realize the gigantic strides made by photography. There are but few advances in the realms of science that can compare with it in the rapidity of their development. Steam and electricity have been cited as marking the era covered by the last fifty years, and these are sometimes coupled with photography, as the three signal achievements of the last half century. From the early efforts of Daguerre and Niepce, which gave us the daguerreotype in 1839, to the researches of Abney, Vogel and Eder of to-day, what a rapidly moving army of workers have marched in the line of its progress! To give us the marvelous results of modern photographic achievements, each one of these laborers has had to do his particular share of the work of progress; each one has had to give his mite to build up the collosal structure that to-day commands our admiration, and whose towers and pinnacles are not yet reared, except it may be in a few places. There still remains enough work for thousands of active minds, thousands of acute experimentalists, to push the work to completion, or at least to build up the grand edifice so nobly begun and carried to its present state of perfection. Then let us each and all continue this good work; let us each and all add our share to the advancement of the art we love, the science we so much admire, remembering, with the American poet:

"Not enjoyment, and not sorrow,
Is our distined end or way;
But to act, that each to-morrow
Finds us farther than to-day."

Finds us farther on the road to the full development of the wonderful art whose future we cannot now even faintly realize.

Seeing that this year marks a half century's progress in photographic achievements, and that a retrospect of the advances made would serve to guide all workers as to future lines of development, we think a Jubilee Convention of the photographers of America would lead to some useful and practical results. Some talk about such a convention arose at the Minneapolis meeting of the Photographers' Association of America, and it

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appeared to be the spirit of many there present that such a Jubilee Convention at Boston this year would be highly appreciated and well received by all the photographers of America. In order to make such a Convention a success, it is necessary that work in that direction should be begun at once, and organized efforts be started in all quarters to make the meeting well worthy of the event it is to commemorate—the first half century's progress of our art.

We sincerely hope that the new officers of the Photographers' Association of America will organize for this purpose at once, and we doubt not that the lovers of our art in Boston will do all they can to further the movement.

One of the best things to do is to organize a number of committees, having definite lines of work to attend to, so that all the labor does not fall upon one or two men, as is so often the case. It appears to us that we may copy our English cousins in this matter, not because "It's English, you know," but for the reason that it gives a better assurance of success, and greater comfort to all concerned. A good "Local Committee" of Boston men is a desideratum, and we could name several gentlemen that can organize such a committee. Such a local committee should be subdivided into a Reception Committee, whose business it should be to look after and assist the general officers of the association to secure quarters and arrange for the meetings; an Excursion Committee, having in view the entertainment of visitors by planning several interesting excursions, many beautiful and interesting places being easily reached from Boston at small expense; and last but not least, an Exhibition Committee, whose special business it shall be to arrange for a display of all the historically interesting objects that mark the progress of photography in America. This last sub-committee is an important one, and its work would be most highly appreciated by all true lovers of photography.

This is somewhat on the plan of the arrangements of the Committee of the British Convention at Birmingham, and we should be glad to see something of this kind carried out. Hitherto all the work has fallen upon a few good-natured members of the association, and they have not always been thanked for their labors. Let us have a royal good time in Boston—such a time as photographers can have if they choose—full of the sunshine of good feeling, full of a fraternal spirit, and with but one object in view—the progress of the art we love. The BULLETIN will be ever ready to lend its aid to such an end.

EDITORIAL NOTES.

WE must apologize to our readers for the lateness of the last issue of the BULLETIN. The delay was caused by the difficulty of getting ready the portrait of the late Mr. Edward Anthony, and the large number necessary for the completion of the edition.

WE copy the following from the *Photographische Mitthielungen:* At the meeting of the "Verein zur Forderung der Photographie," in Berlin, the chairman submitted samples and pictures of the new Anthony paper, which were greatly admired and praised. It is twice as sensitive as that of Dr. Jost and of Stolze, possesses only a thin gelatine coating, in consequence whereof it can be easily washed and fixed. The pictures made on it, which have been copied by lamplight, are excellent, and it is the general belief that this paper will displace albumen paper, which has been used exclusively for prints for a great many

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years. Of particular importance is use of this paper with lamplight, as copying, rendered otherwise so difficult on dark winter days, can be continued without interruption, while an ordinary print on albumen paper could sometimes hardly be completed on a dark day.

PROFESSOR W. H. PICKERING, of the Harvard Observatory, has recently been using photography for the detection of nebulæ. The neighborhood of Orion has been mostly used for these researches. From a consideration of the results of this work the Professor believes that four or five thousand new nebulæ are discoverable by this means.

WE are indebted to Mr. J. Albert Cole, of the Washington Camera Club, for a copy of the Constitution and By-Laws of the society. The officers are: Edgar Richards, *President;* S. H. Griffith, M.D., *Secretary-Treasurer;* J. Albert Cole, *Corresponding Secretary.* It has a good list of members and is doing some very useful work.

MR. F. H. LATIMER, of Michigan, sends us an excellent method of clearing blue prints, and writes as follows: "I have often been unable to get a good blue color in making blue prints, generally, I believe, owing to poor quality of ammonio-citrate of iron supplied, and have recently found a method, new, at least, to me, of changing the dirty greenish-blue obtained into a fine blue color. After the prints had been washed in the usual manner, immerse them in a solution of oxalic acid. I have been using about 1 in 30. When the color is satisfactory—generally in from three to six minutes—the prints should be again washed in water." The prints sent treated by this method, and a strip of paper showing on half its surface the application of the solution, fully bear out the claim made for this method of treatment. We can recommend it to our readers.

THE New York Camera Club held its first public meeting on Saturday evening, January 5th, in the hall of the Academy of Medicine, 31st street, New York City. The night was a particularly disagreeable one, yet about seventy people, many of them ladies, were present to listen to interesting papers by Mr. Henry J. Newton and Dr. H. G. Piffard, and which we hope to be able to present to our readers at an early date. The club has limited its membership to fifty, and there are now forty-three names upon its roll. It is organized to make photographic investigations and bids fair to do some good work in this direction.

AT the second annual meeting of the Montreal Amateur Photographic Club, held in their rooms Saturday, 8th inst., the following were elected to office for the ensuing year: *President,* J. G. Shaw, re-elected; *Vice-President,* J. S. Hall, Jr., M.R.P., re-elected; *Treasurer,* E. Bradshaw; *Secretary,* J. W. Davis, re-elected; *Committee,* Dr. R. Campbell and W. H. Scott.

WE are indebted to the Committee of the Pacific Coast Amateur Photographic Association for their kind invitation to the exhibition, December 10th and 11th. We must also congratulate the club upon the artistic little card, "The Critics," accompanying the invitation. This kind of work elevates photography. It is a handsome little photogravure from a negative by Mr. W. H. Lowden, of San Francisco, represening a row of boys sitting on a board fence

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making fun of the photographer. The whole idea is very pleasing, and one of those bits of life that makes us feel:

"One touch of Nature makes the whole world kin."

THE Cranford Camera Club, of Cranford, New Jersey, has recently organized with the following officers: *President*, R. M. Fuller; *Treasurer*, J. C. Wagstaff; *Secretary*, William Chamberlain; *Librarian*, H. N. Gallaudet.

THE following resolutions were passed by the Chicago merchants, on hearing of the death of the late Mr. Edward Anthony:

Whereas, It has pleased Divine Providence to call to his final reward Mr. Edward Anthony, of New York; and

Whereas, He has for many years been universally recognized among photographic merchants as the oldest and one of the most prominent and highly esteemed characters connected with that line of trade; and

Whereas, In his unostentatious yet active and honorable business life, his exalted moral chatacter and high sense of justice won for him the very highest degree of respect and confidence of all business and social acquaintances; therefore be it

Resolved, That we, the undersigned photographic merchants and manufacturers of Chicago, do hereby express to his bereaved family and business associates our deepest sympathy in this hour of their sad bereavement and irreparable loss.

Resolved, That in the death of Mr. E. Anthony the photographers and photographic merchants of the United States have sustained the loss of one of their most active and honored friends, and that the entire fraternity may with profit to themselves emulate the high moral character and active honorable life which formed the chief characteristics of his career and constituted the foundations of his success.

Resolved, That a copy of these resolutions be furnished to the family and business firm of the deceased, and to all the photographic publications of the United States.

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PICTURE NOTES.

QUITE a number of fine pictures have come to our table lately, and want of space has prevented our taking notice of them before. F. H. Brown sends an excellent view of an old tree and farm house nestled beneath it, that strongly reminds us of some of the beautiful views taken by Professor Burnham, and used as illustrations to the BULLETIN some months ago. It is a very artistic picture. G. F. Chapman, of Whitby, Ontario, has been doing some very fine work. A portrait of himself sitting in a window is very well done; a picture of a handsome black dog holding a basket in his mouth, is an uncommonly clean and sharp piece of photographic work. He also sends two other views; one a triumphal arch erected at Beaverton, Ontario, in honor of Sir John A. McDonald, the premier of Canada; and another an instantaneous view at Beaver River. All these pictures are well done and deserve commendation.

Mr. Louis F. Drake sends us a fine blue print of a Colorado view, which is remarkable for fine detail and excellent cloud effects. It is a picture of an old over-shot water saw mill; quite a rare thing to see in the West. The picture is finely taken in every way.

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We are indebted to Mr. Albert E. Duckham, of Ithaca, N. Y., for a very pretty view of the Lower Triphammer Falls of Ithaca, taken in winter. The ice effects are very well caught, and speak well for the skill of the maker of the negative.

From Mr. A. E. Culver, of Bridgeport, Conn., we have received a very fine landscape view, which he tells us was made with a cheap lens. We must confess that there are few pictures made with expensive lenses that can surpass it either in detail or depth of definition. It is a wonderfully good picture.

Stauffer, of Asbury Park, N. J., has taken some very fine views of the ocean along the coast of New Jersey, and also some beach scenes. In one of these ocean views are three sets of waves, all finely caught and full of motion. Another one is a windy day on the ocean, with some excellent effects in both water and clouds. All these pictures show careful work and skillful photography.

J. O'Neil, of New Bedford, Mass., sends us an excellent view of his reception room. It is certainly a handsome interior.

A couple of beautiful Swedish views come to us from A. E. Thorburn, at Uddavalla. One is a view in summer, showing a rippling brook with bending trees reflected in its still pools. The other is an ice-bound scene near Uddavalla, showing the effect of winter. Both are exceedingly picturesque, and excellent pieces of photography.

McMillan Bros., of Santa Maria, Cal., send us a very good vignetted portrait of a child, with a black background, that is well done. It lacks a little in detail in the hair and the lace collar of the child, but is good, nevertheless.

Hoffmann, of Shenandoah, Penn., sends us a number of fine cabinet pictures that show excellent photographic work, good modeling, careful posing and excellently clean negative work. It is certainly a pleasure to look upon such neat and artistic productions.

"Pretty Poesy," a cabinet picture of a little child standing in a bed of flowers and holding one in her hand, wrapt in admiration, is a very pretty little study and well carried out. We like to see photographers take an interest in such work; it teaches them far more than long discourses upon art would ever do. This picture is from the studio of Berryman, of Midland, Mich.

THE LIGHTING IN PHOTOGRAPHIC STUDIOS.

BY P. C. DUCHOCHOIS.

(*Continued.*)

Pose the model about at the center of the skylight, so that the light plays all around it, using now little side light, and turn the head slightly away from the light in placing the camera diagonally, as it is proper. In this position, the shadow under the eyebrows, the chin, etc., is exaggerated, but the moment a semi-opaque head screen is placed over the head of the model, the rays of light falling perpendicularly upon it are diverted from their course, and the light diffused around the figure illuminates it with soft gradations.

By raising or lowering the head screen, by turning it to a certain angle, the lighting is altered at will, being softened or rendered more vigorous. If the face be not well in relief, too flat, throw more direct side light in front of the model to illuminate more strongly the predominant parts, and at the same time that thi

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effect is produced, more shadows will be cast on the opposide side. Or incline upward the head screen toward the shadowed side to admit more light from above, when more contrasts will be obtained.

If it happens that the shadows—on the neck specially—are too dark, they may be softened either by a side transparent screen to alter the opposition of dark and light, or, better in this case, by a light rose or blue reflector placed so as not to project a luminous point in the eye. For this purpose a small mobile concave reflector, which can be raised to any height and turned to any angle, as advised by Mr. Klary, is most convenient. This head reflector may be fixed to a success head rest, just as the head screen.

By experimenting with the head screen, one can produce with the greatest ease almost any effects of light and shade.

It is when the studio is lighted only from a glazed roof, or when the sitter is posed with the head turned to the upper light, that the head screen is quite indispensable. Lately we have seen made by an artist photographer, whose works are ordinarily of a high order, the portrait of a celebrated comedian, dressed *à la* Louis Quatorze, reclining on a chair. The face on which the light falls is flat, without character, all the *méplats* being drowned in the light. Had he employed a colored semi-opaque or even an opaque head screen or canopy, the picture would have been exceedingly improved without it being necessary to lengthen the time of exposure.

The lighting *à la* Rembrandt of the photographer presents great difficulties. This style never was employed by artists for portraits. Those great light and dark contrasts, so effective in *genre* pictures, do no more pertain to the composition of a portrait than those pretentious and theatrical attitudes so much in fashion now-a-days; for, strange to say, there is a fashion in photography.

To make a portrait is not to represent an action, but a person with its characteristics. The pose should be simple and natural, the lighting not exaggerated, which does not exclude effect, grace and distinction. But certain photographers would not be satisfied unless they invent every day half a dozen of new poses, twisted one more than the other.

Select a hundred portraits by the great masters of every school; you will be astonished to observe that the same attitude is repeated with little variations—the body and the head being slightly turned—and that the character of the picture resides entirely in the true representation of the person ; the draperies, the accessories, and the background treated with the importance they merit, adding to the general effect of the picture.

To light a model Rembrandt style, that is to say, one side of the head in the light and the other in the shadow, the latter being the broad side of the head, three causes of defects should be avoided : first, too great an opposition of light and shade, which produces harshness, then flatness in the shadow-side; and lastly, the use of an ordinary white reflector which, as before stated, reflects the light upwards, causing a false illumination and an objectionable reflection in the eyes.

The model should be seated in the center of the light, near to the side light —about five feet from it—and the head turned in a diagonal to the light.* The

* This is one manner of lighting. The Rembrandt effect can be obtained in other positions by the use of the head screen or canopy to soften the top and side lights, and the head reflector to project half lights on the shadow-side.

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shaded side of the head is generally in that position, flat, without *modelé*, and should be relieved by means of the concave reflector placed a little above the head, in order to reflect the light downward in a direction almost similar to that of the light. The head screen also comes into play to protect the hair and cast a shadow on the lighted side, in order to avoid too great a contrast of light. This arrangement requires practice to produce a just effect. As to the background, care should be taken to oppose light to dark and dark to light to relieve the whole figure.

There is a style of pictures "suitable for ladies and pretty to a degree," the specialty of the Maison Joliot, in Paris, which is almost unknown in New York. We refer to the *Cartes Russes*, or bust pictures, on a black background. Here—says Mr. Baden Pritchard, describing in his interesting work, "The Studios of Europe,"* the manner in which these cartes are made—there is a background of a dark red color, so dark that it scarcely appears red at all. To produce the *Carte Russe*, the sitter is placed some eight feet from this background, so as to permit plenty of light to intervene between it and the model; the result is that the finished portrait has something of a Rembrandt look, the features rounded and standing out well in relief. On the shadow side of the sitter, either white or blue curtains are arranged, to reflect back the light and not to permit too much shade on this side of the face. A negative taken under these circumstances does not require to be manipulated at all so far as face and shoulders are concerned, since these stand out boldly from the background when the negative is printed; but some skill is necessary to cut off the bust and print the paper black below the portrait. Portraits produced in this way, especially of ladies in light summer or ball-room dress, are exceedingly effective. Costumes in white, blue, violet, mauve, rose and light gray are specially to be chosen for *Cartes Russes*, since, according to Mr. Joliot, they give the best results.† Black dresses should be avoided, of course.

The reader will perceive that the model can be easily lighted for the *Cartes Russes* by the head screen or canopy and the mobile reflector. As to the vignette gradation, it is obtained without any difficulty whatever by exposing the proof to light on its removal from the printing frame under a vignette glass—or a vignette paper—black in the center and shaded the reverse of that usually employed for the ordinary style of vignette.

The gradation can also be produced on the negative itself by interposing a small notched circular dead black mask at a certain distance between the sitter and the lens, and adjusted so as to show on the ground glass of the camera a vignetted image, and then tinting the prints as above explained.

(*To be continued.*)

[*From Photographische Correspondenz.*]

THE PYRO DEVELOPER WITH METABISULPHITE.

BY DR. J. M. EDER.

LATELY I called attention to the metabisulphite of potassium as an addition to the pyro solution for development, and can give now some of my experiences with this salt.

The metabisulphite of potassium, which was introduced into the market by

* American edition, pp. 209–210. Published by E. & H. T. Anthony & Co.

† Any lighting answers well, but a true Rembrandt does not show with advantage in that style of picture.

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Dr. Schuchardt, and whose correct analysis is not known yet, is a white crystal, which in a solid condition as well as in an aqueous solution has a strong smell of sulphurous acid. An aqueous 2 per cent. solution of this salt dissolves pyrogallic acid to a weak yellowish color, being distinguished from the more light-brown solution of sulphite of soda and pyro. The solution kept very well for four weeks in half-filled bottles, and showed a better preservation than the usual solution of pyro and sulphite of soda.

More than 2 per cent. of the metabisulphite of potassium is without any advantage.

If this solution is mixed with soda, a picture will develop rapidly, but the same will show a strongly yellow coloration in the gelatine film. Sulphite of soda has to be added to the soda solution, to obtain an agreeable brownish or black tone in the negatives.

If the contents of metabisulphite and pyro-soda developer are increased, it will act very slowly; larger quantities of the metabisulphite of potassium therefore act like a strong retarder. In small quantities there is no injurious retarding action, but it will have the effect, that the plates obtain very clear shadows in this developer, and that the picture appears slower and will strengthen more slowly. The strongly retarding action of larger quantities of metabisulphite might be accounted for in that the bisulphite will give with the carbonate of soda, monosulphite and soda bicarbonate, which latter is not a strong enough alkali to develop the bromide of silver strongly with pyro. An increase of soda compensates this retarding action of the metabisulphite of potassium.

Good results were obtained by me with this salt after several tests, by producing the following solutions:

A.

Pyrogallic acid	4	grams.
Metabisulphite of potassium	1½	"
Water	100	c.c.

This solution keeps for weeks in corked bottles.

B.

Crystalized soda	10	grains.
Neutral sulphite of soda	15	"
Water	100	c.c.

Before using mix:

Pyro solution (A.)	20	c.c.
Soda solution (B.)	20	"
Water	20	"

The developer acts about one and a half times slower than the ordinary pyro-soda developer, approaching to the latter pretty nearly, and gives to the negatives an agreeable color and softness, with clear shadows. If the negatives are to be thinner, more water, say 30 to 40 c.c. is taken. If denser, then the soda is increased and the water in the developer is reduced. An alum bath before fixing is to be recommended.

An advantage of this development is the great durability of the pyro-meta sulphite solution. The cost price is about the same as that of the ordinary pyro-developer. At all events it is worth while to make further investigation with the metabisulphite of potassium, the same being also a good preservative for hydroquinone solutions.

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[*From Photographisches Correspondenz.*]

COMPARATIVE TESTS OF THE DEVELOPERS WITH HYDROXYLAMINE CHLORIDE.

BY ALEX. LAINER.

THE fact that the hydroxylamine chloride develops very powerfully, giving at the same time very brilliant negatives of great clearness, has caused me to collect the notices about this from the several journals, and submit the same to an investigation.

In consequence of certain advantages over the pyro soda developer, the hydroxylamine developer would be certainly in more general use if the formation of bubbles, etc., was not a constant companion.

The cause of this, as generally regarded, consists in the formation of gases, namely that of nitrogen and oxide of nitrogen.*

The means to prevent the formation of bubbles were mostly directed to a hardening of the film, resulting, according to my opinion, in just the opposite effect. With better results I tried to loosen the same by applying sugar and glycerine in the developer, thus opening the pores of the gelatines, and facilitating the escape of the gases. Dr. Lossen says, that the nitrogen and the oxide of nitrogen are perceptibly more soluble in cold than in warm water, and that an addition of cold water would remedy this, if the development was not slackened simultaneously.

The formation of bubbles is much more energetic when the hydroxylamine solution is concentrated and the stronger the additional base is. For such tests I used potassium hydroxide, sodium hydroxide, calcium hydrate, carbonate of potassium and barium hydrate. All tests with these substances and hydroxylamine chloride, resulted in reductions.

The tests made and the results obtained were as follows:

At first I developed one of the dry plates with the ordinary pyro soda and one with the oxalate developer for the sake of comparison.

The pyro soda developer gave 20 degrees W. with great strength and clearness. The oxalate developed number 23 of the Warnerke sensitometer, but at the same time it showed a formation of fog.

1. Water, 60 c.c.; hydroxylamine chloride, 0.3 grams; caustic soda, 0.4 grams: upon ordinary and gelatine emulsions, with chrome alum, with or without addition of sulphate of soda (glauber salts) to the developing solution. Addition of glycerine reduced the formation of bubbles; and 20 degrees W. were obtained with very little density. Bromide of silver gelatine paper gave good results, great density, no formation of bubbles, no fog. The solution can be used frequently in succession.

2. Hydroxylamine chloride and potassium lye: 20 degrees W., very little strength, formation of bubbles.

3. Hydroxylamine chloride and potassium carbonate: 20 degrees W., handsome gradation, strong formation of bubbles.

4. Hydroxylamine chloride, 25 drops (1:5), and lime sugar solution 50 c.c.: 20 degrees W., very thin, clear, free from bubbles. By changing the proportion of mixture, to obtain more strength, a formation of bubbles and fog could be observed.

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* Photographic Archir, No. 595, Dr. Lossen.

3. $NH_4O = N_2 + NH_3 + 3H_2O$ or $4NH_4O = N_2O + 2NH_3 + 3H_2O$.

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5. Hydroxylamine chloride and caustic baryta:

(*a*), 50 c.c. caustic baryta + 10 drops hydroxylamine chloride: 15 degrees W., some fog, some density, without bubbles.

(*b*), 50 c.c. caustic baryta and 25 drops hydroxylamine chloride: 17 degrees W., fog, dense, bubbles.

(*c*), 10 c.c. caustic baryta, 20 c.c. sugar solution (1:10), 12 drops hydroxylamine chloride: 20 W., very clear, formation of bubbles not much visible, somewhat thin.

(*d*), 20 c.c. caustic baryta, 20 c.c. sugar, 20 drops hydroxylamine chloride: 20 degrees W., strong, very little formation of bubbles.

The latter mixture gave with this and other tests the best results. As a disadvantage, may be mentioned the want of constancy of the baryta solution, which becomes cloudy very soon in consequence of the formation of carbonate of baryta.

Stebbins and Cassebaum published developer formulæ of pyro soda developers with hydroxylamine chloride. Cassebaum says:

"I find that the hydroxylamine in connection with pyrogallic acid is not only a valuable addition to keep the solution of the pyro clear for an indefinite period, but it possesses advantages which the pyro alone has not got."

He mixes 3–7 grams of a pyro solution with 224 grams of the soda solution:

A.

Hydroxylamine	3.85	grams.
Pyrogallic acid	28	"
Water	168	"

B.

Soda	42	grams.
Sulphite of soda	132	"
Water	132	"

This developer is recommended by Cassebaum particularly for lantern slides and transparencies, and he mentions particularly the depths of the bluish black tones, obtainable with the same, as also their rich gradations.

The test with above formula gave by application of the minimum of 3 grams of the pyro solution, 18 degrees W. very little density, flatness; with the maximum of 7 grams pyro, great density, handsome gradation, 18 degrees W.

The developer of Stebbins has the following composition:

A.

Hydroxylamine	2 grams.
Pyrogallic acid	15 "
Water	100 c.c.

B.

Soda	34 grams.
Sulphite of soda	70 "
Water	1,000 c.c.

For use mix 2-4 A with 75 B.

6. Experiments:

(*a*), 2 A with 75 B gave 19 degress W., good gradation, clearness, normal density.

(*b*), 4 A with 75 B gave 20 degrees W., great density, clearness.

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A comparative table of these two developers with the pyro soda developer shows their relationship with the same. For this purpose I calculated all formulæ upon the value of 100 c.c. mixed developer:

Constituent Parts.	Cassebaum.	Stebbins.	Ordinary Pyro Developer.
Soda	2.50	2.40	3.33
Sulphite of soda	7.86	7 00	6.66
Pyrogallic	0.52	0.81	0.93
Hydroxylamine	0.7	0.11	.....
Water	100.	100.	100.

Further tests with these developers showed that the sulphite does not become superfluous on account of the hydroxylamine chloride, as the negatives will turn completely yellow without sulphite. If the hydroxylamine chloride is increased, the soda should also be considerably augmented.

Otherwise no particular success could be obtained with the developers of Cassebaum and Stebbins against the ordinary pyro soda developer.

Based upon this table and the examination of all information upon the application of the hydroxylamine chloride for developing the bromide of silver gelatine dry plates, I believe, and the verdict is justifiable, that the pyro soda developer, as well as the oxalate developer (aside from hydroquinone), is not surpassed for general use by any other developers, especially the hydroxylamine, in respect to a sure and certain application.

THE LARGEST CAMERA IN THE WORLD.

BY HENRY HARRISON SUPLEE.

[Read before the Photographic Society of Philadelphia.]

The recent completion of the great Lick telescope, and the success which has attended its use for general astronomical purposes, have been subjects of interesting discussions, both among astronomers and mechanicians, and an examination of the photographic features of the instrument may not be without interest to photographers. Before entering into a description of the attachments of the telescope which are particularly devoted to photography, a brief general account of the instrument may be necessary in order to make clear the arrangement of the parts.

As the vital point in a camera is the lens, so the objective is the great point in a telescope, and the objective of the Lick telescope, the last and greatest work of the veteran Alvan Clark, is the first and most important part of the instrument. The clear diameter of the lens is 36 inches, and it is composed of two disks of crown and flint glass respectively, both disks being cast by Feil, of Paris, and ground and figured by Mr. Clark, at Cambridgeport, Mass.

The production of a satisfactory and homogeneous disk of glass, free from waves and striæ of unequal density, is a most difficult matter, and in the case of the disk of crown glass a satisfactory casting was secured only after nineteen failures. The crown glass lens is a symmetrical double convex figure, both faces being worked to curves of 259.52 inches radius, and the double concave flint disk has its front face worked to a radius of 239.59 inches, and its back

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face is curved to a radius of 40,000 inches. The disks are not cemented, but are mounted 6½ inches apart, the combination having a focal length of 678 inches, or 56 feet 6 inches.

This lens, the largest in the world, is mounted in a tube of cast-iron and steel, the tube being 4 feet in diameter in the middle and tapering to 3 feet at the ends. This is mounted equatorially, and some idea of the weight and



36-INCH EQUATORIAL TELESCOPE, LICK OBSERVATORY.*

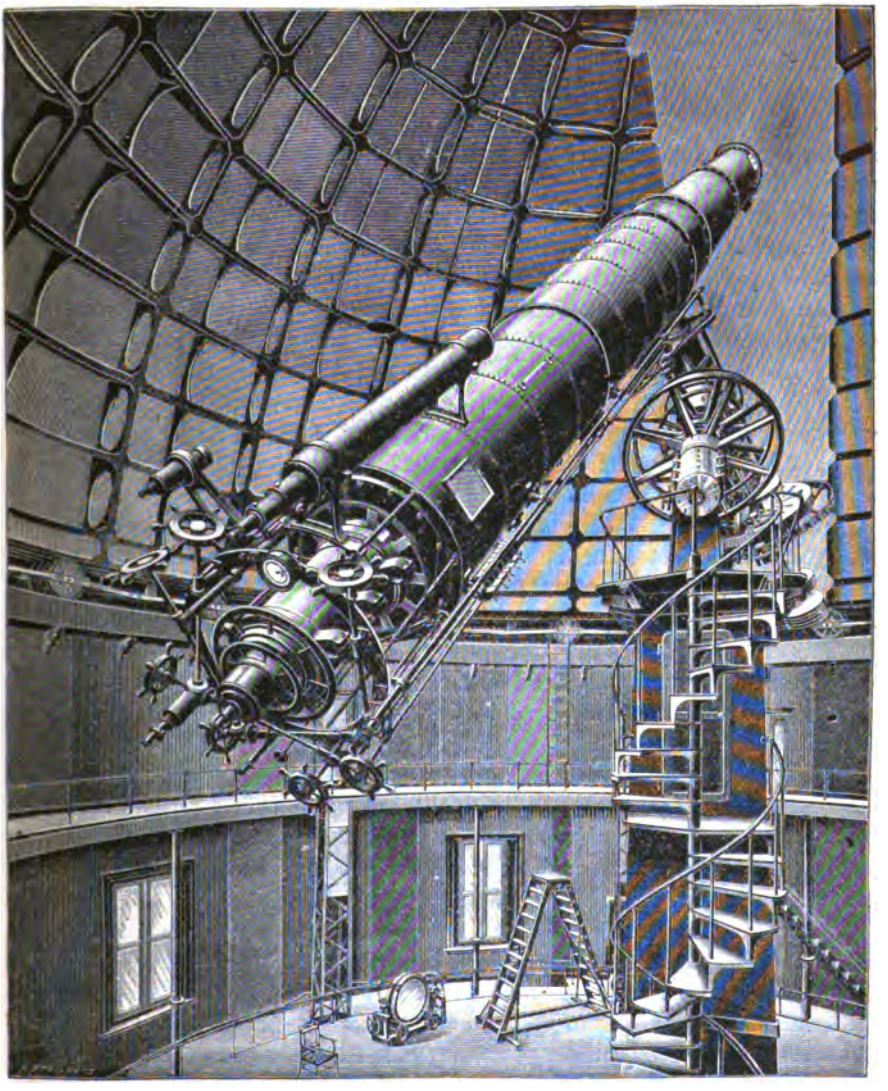
solidity of the parts may be obtained from the fact that the polar axis is a steel spindle 10 feet long and 12 inches in diameter, and it alone weighs 2,700 pounds. The weight carried by this axis is about 20,000 pounds, and in order to relieve the spindle as much as possible, a series of anti-friction rollers are placed just beyond the first bearing to take a portion of the weight.

* We are indebted to the *American Journal of Photography* for the use of these handsome cuts.

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The instrument is mounted on a hollow cast-iron column, built up in sections, the driving clock and regulator being placed in the column and connected by electric control with a standard astronomical clock, and with the chronograph.

The control of the telescope in all its movements is effected by the numerous handles which are gathered around the eyepiece and upon the top of the column.



36-INCH EQUATORIAL TELESCOPE, LICK OBSERVATORY.

The instrument is intended to be controlled by the observer and an assistant on the column, although for rapid movements in right ascension and declination help may be given by an assistant on the floor. The various handles and attachments for the use of the observer are mounted on a large ring around the eyepiece, which carries the handles for clamping the instrument or giving slow motion in right ascension or in declination, and also carries the reading micro-

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scopes and finders and a small sidereal clock. Electrical switches are also provided by which the driving clock can be started or stopped, and the illumination of the divided circles controlled.

It has been customary in large telescopes to provide a chair for the observer, which followed the motion of the eye end of the instrument; but the inconveniences of this method increase with the size of the apparatus, and in the case of the Lick telescope it was decided to adopt the method proposed by Sir Howard Grubb, of making the entire floor of the dome rise and fall to bring it at all times within a convenient distance of the eyepiece. As this movable floor is 61½ feet in diameter, and has a rise and fall of 16 feet, the magnitude of the task is apparent. The motion of the floor is caused by four telescopic hydraulic rams operated by a differential valve provided with an indicator which may be read in the dark. A hole in the middle of the floor provides space for the column of the telescope and for a staircase, and the entire motion of the floor is accomplished upward in less than nine minutes, and downward in five minutes.

The great dome is also controlled by hydraulic power through the medium of an endless wire rope, and in this manner the unusually heavy parts are kept as completely in hand as in the case of smaller and lighter apparatus.

The most interesting part of the outfit to photographers, lies in the accessory apparatus for use in celestial photography; and as the telescope when arranged for photography may be considered the largest camera in the world, some of its details in this direction are worthy of especial notice.

In the first place the objective was figured and corrected solely for visual purposes, and was therefore unsuited for photographic work; and in order to provide the necessary correction, an auxiliary corrective lens was made to be mounted in front of the original lens.

This corrective lens is of crown glass 33 inches in diameter, and may be seen in the illustration on the floor, on its carriage which has been provided for handling it. When this lens is placed in front of the regular objective, it not only makes all the corrections necessary for photographic work, but also shortens the focal length of the entire combination 10 feet, thus making the position of the plate holder come some distance within the eyepiece. This permits the entire apparatus about the eyepiece to remain undisturbed when the telescope is used for photography, the holder and its attachments being introduced into the tube through an opening in the side.

Within the tube at this point is a carriage composed of two rings of about the inside diameter of the tube, these rings being connected together by four rods. On these rods the sliding portion of the carriage is fitted, and by means of screws the frame may be moved and adjusted in any desired position. As the rays of light from celestial objects are practically parallel, the camera is of fixed focus, and when the proper point is once determined there is no use for any focussing screen, and the screw motion which acts on the carriage is provided with a pointer which indicates the exact focus. This pointer traverses past an index which is graduated for various degrees of temperature, for the expansion and contraction of the great tube would otherwise destroy the sharpness of the image.

The plate holder, 23 inches square, carries a plate 20 x 20 inches, and slides into grooves in the carriage, where it is held by a spring. The holder is pro-

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vided with shutters which are operated from without the tube, so that exposures may be made in that manner.

When an enlarged image is desired, the holder is not slid into the carriage, but in its place is put an enlarging lens of 2 inches aperture and 12 inches focus. This magnifies the image formed by the large objective, and projects it toward the eyepiece, which is then removed, and a small camera substituted to receive the enlarged image. This enlarging lens is fitted with a time and instantaneous shutter, operated from without the tube, so that enlarged photographs of the image formed at the focus of the telescope may be made direct, without being reproduced as in ordinary methods of enlarging.

Although the telescope as a camera has been in use such a short time, some very satisfactory work has been done, and the great light-gathering power of the 36-inch objective will doubtless reveal detail in the photographic work that a smaller instrument would be unable to secure.

Great credit is due to Messrs. Warner & Swasey, of Cleveland, Ohio, for the skill which they have displayed in the designs for the mounting of the telescope, and for the care with which the work has been executed; and the success of the great camera is due quite as much to the designer of the mechanism as to the maker of the lens.

DEVELOPMENT BY SEPARATE SOLUTIONS.

By D. Bachrach, Jr., *Baltimore.*

[Read before the Society of Amateur Photographers of New York.]

In a foot note in "Wilson's Quarter Century in Photography," I say, "It has for a long time been my opinion, both from theory and some experiments that I made, that the present method of mixing both the pyro and alkaline solutions when developing, was neither the best nor most economical method, if, as I think, we can now mix up an aqueous solution of pyro that is stable and will not change. Those who understand the chemical action involved, are aware that pyro occupies almost precisely the place of free nitrate of silver on a collodion plate, and that the sal-soda or ammonia the place of the sulphate of iron or pyro, whichever was used. Acting on this theory I developed a few plates by first immersing them in a strong pyro solution for a minute (which I then drained off again into the bottle), and then developing them with the sal-soda solution, using the same quantity of water as if the solution had been mixed in the usual way. The result was as good as the best developed plates by the other methods. It will be seen that several advantages are gained: 1st, the immersion in the strong pyro causes a uniform absorption of it all over the plate. 2d, at least two-thirds of the pyro is saved."

The formula given in the foot note is as follows:

Pyro Solution.

Sulphite of soda	4 ounces.
Water	16 "

Add enough sulphuric acid to turn litmus paper decidedly red.

Pyrogallic acid	1 ounce.
Bromide potassium	¼ "
Sulphate magnesium	1 "

Alkali Solution.

Sal soda, crystalized	½ pound.
Sulphite of soda	¼ "
Bromide of potassium	½ ounce.
Water	1 quart.

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Of this alkali, take half an ounce to two and one-half ounces of water.

When a plate is to be developed, it is dipped first in the pyro solution, not over a minute, and taken out and drained, and then developed with the alkali.

The sulphate of magnesium is added to the first solution to prevent the softening of the gelatine, which is likely to occur when the solution is either warm or tepid.

A member of the Society of Amateur Photographers of New York wrote to me concerning this method of development. I replied that I had been using it lately exclusively on 11 x 14 plates and less, and am as well pleased with it now as when I first introduced and published it about three years ago, for its cleanliness and regularity of result, as well as rapidity of development.

The following is the formula I now use:

SOLUTION NO. 1.

Pyrogallic acid	1 ounce.
Sulphite of soda (crystals)	4 ounces.
Oxalic acid	20 grains.
Distilled water	1 quart.

SOLUTION NO. 2.

Sal soda (crystals)	2 ounces.
Sulphite of soda (crystals)	2 "
Water	1 quart.

I have two dishes, one for enough of No. 1 to cover the plates, and one of the same dimensions for No. 2. Soaking for half a minute in No. 1 and then developing in No. 2 proceeds regularly right along until all the plates are developed.

But I must caution the beginner to always have some old developer of the previous day at hand to start with, by adding to the No. 2 solution, else the first plate or two will lack vigor. As the development proceeds, and in case of a large batch I find the solution of No. 2 to act a little slow, or with more contrast than I wish, I pour off a little and add fresh solution. In this way I have developed thirty to forty negatives of all sizes, with one assistant, of a very uniform intensity, in less than half an hour. The plates used were Carbutt's and Cramer's. I do not see any advantage in this method to amateurs who have only a few plates to develop at a time, and can watch each one carefully; but to the professional photographer who works with pretty uniform conditions of light, and gets somewhere close to the proper exposure, it offers the most regular, cleanly and rapid method of development I know of. In addition, it is very economical, as not over one-third the amount of pyro is used as by the regular method of developing in one solution. Each plate absorbs sufficient pyro to produce the proper result, and hardness is avoided. For cases of extreme over-exposure, where "doctoring" is necessary, this method will not do, and a powerfully restrained developer in the usual style is necessary.

But I am indebted to the inquiry of the gentleman referred to in the first part of this paper, for it induced me to try hydroquinone (which I had abandoned on account of its tendency to harsh results when development was prolonged) in the same manner, and I must say that I was surprised at the result. It gives me the best class of quick-printing negatives I have yet been able to obtain, and especially is it good for very rapid plates that have a tendency to fog. I use it now almost exactly as I have described for pyro—in fact, substitute, in the formula above given, hydroquinone for pyro (leaving out the oxalic acid), and you have a developer giving better results than any formula yet proposed for hydroquinone. All tendency to extreme hardness is avoided by the method of first soaking in the hydroquinone solution and then developing in the soda solution, and the action is also much more rapid than with the old formulas. The dish in which the plates are developed (No. 2) must be kept rocking (with both the pyro and hydroquinone developers) until the image begins to assume strength, to prevent uneven development. In the first soaking (No. 1) this is not neces-

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sary. I have fully determined to adopt this method of development with hydroquinone in our establishment.

It will be observed that I have omitted in my second formula of developer both the bromide of potassium and the sulphate of magnesium, as they are unnecessary, because the weather now is cold enough and the plates I am using do not seem liable to frill, and I believe in simple formulas. I have also tried the addition of phosphate of soda, as recommended by Mr. Gilder, an amateur of Baltimore, but fail to see any difference in the result. It may be there is virtue in it, but I have not the time to give a careful test. I am opposed *a priori*, to complicating formula with apparently inert substances, though perhaps I may be mistaken in this case.

I think this method with hydroquinone is of importance to the profession, as it is, as I have before stated clearly, regular in results, rapid in development, and economical, as both the pyro and hydroquinone solutions will keep until used up. The alkali solution also keeps well.

COLLODIO-BROMIDE EMULSIONS.

BY F. C. BEACH.

[Read before the Society of Amateur Photographers of New York.]

In bringing this subject to your attention, I am reminded of the fact that it is nearly ten years since I had the pleasure of experimenting with collodio-bromide emulsion, not so much in manufacturing them as in using those put on the market at that time, made after the formula of Mr. Henry J. Newton. We then had to prepare our own dry plates and give a considerably longer exposure than is now necessary, but we had the satisfaction of obtaining beautifully clear, crisp and dense negatives. There was more latitude in exposure and development than now.

Considerable attention has been given of late to lantern slide making, and as a few of our members have had difficulty in obtaining good slides on the special gelatine lantern commercial plates, owing to a loss of sensitiveness or fogginess and flatness, which does not fully show itself until after the plate is fixed, it occurred to me it might be useful to explain a few formulas for making and using collodio-bromide emulsions, for the reason that they are rather more convenient for the amateur than the use of the ordinary wet plate collodion process, since the use of the silver bath is avoided, and beautiful crisp slides, full of clear, bright lights, are readily obtained.

In making lantern slides a slow washed collodio-bromide emulsion is preferable; one to be had ready prepared, that gives fine results, is made by Mr. William Brooks, of Reigate, London, and it is what I have been lately experimenting with. The formula for making the emulsion was given by Mr. Brooks to a Mr. Frederick Dunsterville, of Rayapuram, Madras, and what follows will be a description, taken from Mr. Brooks and Mr. Dunsterville's directions.

Prepare three separate solutions, in ordinary daylight, as follows:

Plain Collodion.		
Alcohol, methylated	4½	drams.
Ether	3½	"
Gun-cotton, high temperture	12	grains.
Bromide Solution.		
Alcohol, methylated	1½	drams.
Ammonium bromide	13	grains.
Distilled water	20	minims.
Silver Solution.		
Silver nitrate	20	grains.
Distilled water	12	minims.

The most important feature of these solutions is the employment of a suitable kind of pyroxyline or cotton (in this country Hance's is considered the best), then the process is comparatively easy and certain. Make a stock of plain collodion and let it rest for some time, so that all insoluble particles and other

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impurities may sink to the bottom. Tall, narrow bottles are best to store it in. The proportion for a stock solution may be :

Alcohol	22 ounces.
Ether	18 "
Gun-cotton, high temperature	1 ounce.

Referring to the three solutions before mentioned : The bromide should be made by first dissolving the bromide of ammonium in the given quantity of water, heated to near the boiling point, then when cooled to 70 degrees F. the alcohol is added. The water of the silver solution should also be warmed to dissolve the silver easily and rapidly.

To make the emulsion, pour 1 ounce of the prepared plain collodion into a clean 4-ounce bottle with glass stopper, then add the bromide solution as previously given, shaking well for some minutes. The bottle containing the bromized collodion should then be taken to the dark room, and the silver solution added little by little, shaking well between each addition. It is well to rinse out both the bromide and silver bottles with a little of the collodion, to insure the whole of the salts being taken up. The emulsion should then be kept in the dark room for about twenty-four hours, shaking well at frequent intervals, and when ready for washing it should be poured into a glass dish, which should be large enough to contain the quantity of emulsion in a mass not thicker than one-eighth of an inch. As the solvents evaporate a skin forms on the surface, which should he broken up occasionally with a silver spoon or ivory paper knife. When the solvents are completely evaporated the pellicle should be washed in distilled water for half an hour or so, until all the soluble salts have been removed.

The pellicle should then be squeezed in pieces of clean calico until as much as possible of the water is removed, and it can then be dried by moderate heat over a water bath. The whole of the washing process should be done in a dark room or at night time by the light of a candle placed at some distance.

When quite dry the pellicle may be re-dissolved in three-quarters of an ounce of alcohol absolute (0.805) and three-quarters of an ounce of ether sulphuric pure (0.720), pouring the ether on first ; and when all the pellicle is dissolved, the bottle (a 4-ounce one) should be well shaken up, and in about twenty minutes to half an hour will be ready to coat plates, after being filtered. It will be a milky colored solution, resembling somewhat cream in consistency.

The filter for the emulsion may be merely a small funnel, with a little tuft of cotton jammed in it, through which a little alcohol should first be run, or, what is better, the first portion of emulsion running through may be returned to the filter. A friend of mine, Mr. A. S. Murray, advises the use of paper filters instead of cotton, for he found particles of the cotton would find their way into the emulsion and cause specks on the plate.

Before coating a large number of plates it is advisable to test the emulsion in the dark room, to see that it is free from fog, by coating a plate; as soon as the film is set wash it in clean water by soaking until all the ether and alcohol are removed, which will be observed as soon as the greasy lines disappear. Then pour over the plate a little developer of full strength, and after letting it remain on the plate for a few minutes, wash well and fix it with a solution of cyanide of potassium.

It should be absolutely free from fog and stains. Stains may be due to the plates not being chemically cleaned ; but if fog is present a drop or two of an alcoholic solution of iodine, added to the emulsion, will effect a speedy cure.

The emulsion must then be well shaken up again and allowed to rest half an hour before refiltering and coating plates.

Having thus prepared the emulsion or purchased it already made, the next step is to coat the plates. These must, however, be first cleaned and prepared with a substratum, or edged with a rubber solution or some other substitute to hold the film firmly on to the glass. Mr. Dunsterville recommends soaking them in a dilute nitric acid solution (acid one part, water ten parts), then rinse them in plenty of clean water, drying them with a clean cloth. They should then be polished on both sides with a cleaning solution (say tripoli

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powder mixed with methylated alcohol and a little ammonia), care being taken to wipe off the edges that were clamped in the vise, with a clean cloth. They should then be either edged all the way around one-eighth of an inch wide with a rubber solution, or they may be dipped in a hot solution of gelatine (20 grains to 20 ounces of water), and dried with a clean cloth.

Mr. Brooks advises that the plate be cleaned with a piece of clean rag, moistened with methylated alcohol, and polished with a clean chamois leather, kept for the purpose only. No substratum is recommended. He says after cleaning the plate, holding it on a pneumatic holder, edge it with a rubber solution (this is to prevent the film from slipping during the after manipulation). The solution is best applied with a camel's hair brush cut down almost to a stump, with a piece of wire or a slip of glass tied on the side, projecting below about one-eighth of an inch, to act as guide. I followed this method of cleaning, purchasing some new glass. I soaked it in nitric acid and water, then washed it and cleaned by placing the plate in an ordinary wood screw vise, pouring on a little alcohol, and polishing with soft paper called "Joseph Paper." I then give it an edging of the Eastman rubber solution and coated the plate with the sensitive emulsion.

During the development the film loosened from the glass and became entirely detached, which I could not save. The balance of the plates thus coated I edged with the rubber solution a second time, and these films, in most cases, stood the development and fixing without coming off. Some would loosen slightly at the corners where the edging had not adhered sufficiently. So far, then, as Mr. Brooks' directions relates to the preparation of the plate, they are insufficient, for it is evident the collodion film will not adhere unless the edging solution is applied before and after coating. It was formerly my practice to first flow a substratum of albumen over the plate, then dry, and afterwards flow the collodion; then the film would adhere perfectly. This, I am informed, is now the general practice in the preparation of wet plates.

Mr. Murray informed me that he prepared a solution of albumen by beating up the white of an egg with an egg beater, then allowing it to settle for twenty minutes, and re-beating a second time. It is then filtered through a paper filter, a drop or two of ammonia added, and is ready for use. A glass plate that has been well soaked is washed off under the tap slightly and drained. The albumen solution is poured on at one end and gradually flowed towards the other, driving what water there is on the plate before it. The surplus is drained off into the bottle. The plate is set up in a rack to dry. After this it is coated with the emulsion, and when again dry is edged with the rubber solution. Thus there is no chance for the film to slip. Several plates may be quickly albumenized and kept ready for use in a grooved box, free from dust. Then when it is desired to prepare plates they have only to be coated with the emulsion and edged with the rubber solution, which takes very little time; a dozen can easily be coated in twenty minutes.

Dr. J. J. Higgins recommends the use of gum tolu as an edging solution in place of rubber; it can be obtained at any drug store.

There are, doubtless, many amateurs that never saw a plate coated with collodion; it is very easy when you know how, but there is a slight knack or calculation about it that has to be acquired. Mr. Dunsterville thus clearly describes the process: "After securely fixing a pneumatic holder to the back of the plate, dust the top surface with a flat camel's hair brush, and pour on the center of the plate a pool of emulsion that will cover about one-fourth of the whole area; now tilt the plate slightly so that the emulsion will run to the right hand far corner, then to the left hand far corner, then to the left hand near corner, and finally pour off the surplus by the right hand near corner into the filter; the plate should then be raised to an almost vertical position and rocked vigorously to and fro, to prevent marking or lines; when the emulsion is apparently set and no more drops from the plate, it may be put in a grooved rack to dry spontaneously, or laid upon a flat surface and dried by gentle heat, say 150 degrees F."

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Mr. Brooks states that care should be taken to remove any hard particles from the neck of the bottle before coating, and that the plates should be placed an inch and a half apart on the drying rack, which may be set in any suitable cupboard. If they are set closer they will not dry evenly. The plates will dry ordinarily in about two hours.

Coming to the matter of exposure, we find a great difference between these plates and the regular gelatine lantern plates; I should say they were from ten to twenty times slower, as for example, in reducing by the camera. I used a Bausch & Lomb Universal Lens with nearly full aperture, and gave an exposure of six minutes at 3 P.M. with a fairly dense negative backed by a clear sky. In developing I found the plate was very much under-exposed. I then made another exposure of twelve minutes on the same negative, the latter being illuminated by sunlight at 10 A.M., and obtained a fair slide, which, though I used a very weak developer, came out rapidly. In fact it was considered ably over-exposed. Probably six minutes in sunlight, and perhaps four, would have been enough.

I would have given about a minute's exposure on the same negative, using the same lens stopped down to *f*/40 upon an ordinary lantern slide gelatine plate. Mr. Brooks advises an exposure in the camera from one to ten minutes or more, using a quarter plate portrait lens of short focus at nearly full aperture. A long, full exposure gives warm tones, which can be changed to other colors by toning baths; but a short exposure gives cold tones, which cannot be altered by subsequent treatment. In the tropics, where the light is stronger, Mr. Dunsterville reduces a $6\frac{1}{2} \times 4\frac{3}{4}$ negative to $3\frac{1}{4}$ inches square, using a Ross Rapid Symmetrical Lens at full aperture, and a clear sky as background, at an exposure varying from two to six minutes. This emulsion is therefore better adapted for printing slides by contact than for reducing, though the latter can be done easily enough, if one has the time to spare. In contact work the exposure varies from one to six seconds to diffused daylight; or from two to four minutes 1 foot away from a 6-foot fish-tail gas jet, or the burning, about 18 inches from the printing frame, of 1 inch in length of ordinary magnesium ribbon held in a pair of plyers. During the exposure the magnesium must be moved around in front of the frame to insure even illumination of every portion of the negative. I tried the experiment of burning 18 inches of magnesium in front of the negative. When I removed the plate, to my surprise a faint image of the picture was imprinted on it, which I successfully developed out by weakening the developer. Mr. Murray tells me he has brought such an image out by simply flowing the plate with the ordinary pyro solution. Sufficient ammonia was liberated from the plate to accelerate the action of the pyro.

Too much care cannot be exercised in handling these plates, as the surface is much more delicate than the gelatine plate. The negative must be carefully dusted with a flat camel's hair brush, and then the plate must be laid directly on the negative in the printing frame, taking care that while fastening the springs no sliding or rubbing action takes place.

The springs may be considerably lighter than is usual. The least movement of the plate over the surface of the negative is apt to cause scratches.

The developer advocated as the best is alkaline pyro. According to Mr. Brooks it is prepared as follows:

SOLUTION P.

Pyrogallic acid	96 grains.
Absolute alcohol	1 ounce.

SOLUTION A.

Saturated solution of carbonate ammonia	4 ounces.
Potassium bromide	1 dram.
Soda acetate	2 drams.
Water	12 ounces.

The carbonate of ammonia for the solution should be fresh and hard, and smell strongly of ammonia, otherwise it is of no account.

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Four ounces of the salt are broken up and put in a 24-ounce bottle, and 18 ounces of cold water poured on it. The bottle is well corked, preferably with a rubber cork, and is then vigorously shaken. In twelve hours the water should be found to be completely saturated with ammonia and in a prime condition, and if kept in a dark place will last for several weeks.

On mixing the developer, take of—

Solution A	3 drams.
Solution P	5 to 10 drops.

It will be noticed that solution P has a strength of 12 grains of pyro to the dram, so that ten drops (equivalent to 10 minims), would represent 2 grains of pyro. The amount of solution P is very important; if the negative is very intense two or three drops will be found ample, and will give harmony, but the development will be somewhat slow; in extreme cases the developer may be diluted to twice or thrice its bulk with water. With an ordinary negative the full amount of solution P may be used. A glass dish is best to develop in, so Mr. Brooks advises; but I find it very easy to develop by holding the plate at one corner or by a pneumatic holder or manipulator, and pouring on and off the developer, having a tray underneath to catch any that may spill over. After exposure pour over the plate from a bottle, common alcohol three parts, water one part, and allow it to soak on the film for about half a minute, then immerse in a tray of clean water to soak out the alcohol; when the water blends with the film pour off and apply the developer as previously stated. If properly exposed the image soon makes its appearance and gradually, but surely, gains in intensity.

Mr. Dunsterville uses the same pyro solution, but substitutes for Mr. Brooks' alkaline or A solution, the following, calling it No. 2 solution :

No. 2.

Carbonate of ammonia	60 grains.
Potassium bromide	5 "
Acetate of soda	10 "
Distilled water	3 ounces.

Or instead of these, the following :

1a.

Pyrogallic acid	1 ounce.
Sulphite of soda	4 ounces.
Distilled water	9 "

Make faintly acid with citric acid.

2a.

Liquor ammonia	1 ounce.
Potassium bromide	2 ounces.
Distilled water	9 "

To make the developer he takes of P	15 minims.
Carbonate ammonia solution	2 drams.
Water	2 "

Or Instead :

1a	40 minims.

Equal to 4 grains of pyro.

2a	10 minims.
Water	3 drams.

If the plate is fully exposed, the developer may be diluted with another drachm or two of water. When there is any sign of a veil coming over the high lights, at once wash off the developer and fix the plate, which takes place in less than half a minute, with a solution of cyanide of potassium, strength 20 grains to each ounce of water; wash well by placing the plate in a large dish of clean water for about a quarter of an hour.

The potassium cyanide, as is well known, is a most deadly poison (2 grains being a fatal dose), and it is not necessary to keep the dish containing this solu-

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tion in the dark room. If the plate is well washed after developing, it may be safely taken outside the dark room and dropped into the fixing solution, or the latter may be poured upon it and off, the plate being held by a pneumatic holder.

In this connection I may as well state that hypo will fix just as well as cyanide, only it takes longer and also requires more time to eliminate it from the film by washing. Mr. Newton advises fixing with a solution of 4 ounces of hypo-sulphite soda dissolved in 16 ounces of water.

(*To be Continued.*)

A PHOTOGRAPHIC CORRESPONDENCE.

BY MISS ADELAIDE SKEEL.

S. A. is desirous of taking a few pupils in photography. Instruction by correspondence. For particulars and terms apply to Editor of BULLETIN,
591 Broadway, New York.

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27 W—— STREET, NEW YORK, August 6, 1888.

S. A.,—Having seen your notice in the BULLETIN, I inclose the required fee (three dollars), and beg you will advise me what books to read on photography. I have had my outfit all summer, but as I am busy down town through the day as a type-writer for the big paint works, Aquarelle & Co., I have no time for picture-making except holidays and sundays. (I don't use a capital S!)

Yours truly, B. JOHNES.

FAR-AND-NEAR, Orange County, N. Y., August 10, 1888.

To B. JOHNES,—Yours of August 6th received. I should advise you to read "Sunlight and Shadow," M. J. Holmes. *Iconoclasm*—a Treatise on Image Worship—reprint, John Knox. The 2d Commandment—Exodus, chap. 20, v. 4; and then if you wish to pursue photography with the hope of overtaking it, let me know.

Yours truly, S. A.

NEW YORK, August 12, 1888.

To S. A.,—Have read and taken notes. Please send examination questions.

Yours, B. JOHNES.

FAR-AND-NEAR, August 14, 1888.

To B. JOHNES,—So glad you can take a joke, even one which, like gelatine plates, has slightly deteriorated with time. Now send me some of your prints.

Yours, S. A.

NEW YORK, August 23, 1888.

To S. A.,—I send you a print of the procession as it passed Aquarelle & Co.'s on Labor Day—what do you think of it? It is one of my best.

Yours, B. JOHNES.

FAR-AND-NEAR, August 27, 1888.

To B. J.,—Send your worst, please. The print you inclose is admirable for illustrating every mistake a beginner can possibly make, viz.: the tripod was unsteady; the image was not sharply focussed; the exposure was too short; the development too long; the albumen paper was not fumed; it is under printed; half fixed; not thoroughly washed; raggedly trimmed; mounted crooked. I shall be glad to hear from you again.

Yours, S. A.

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NEW YORK, September 3, 1888.

To S. A.,—You are rather severe, but I dare say I deserve worse. The procession moved, and that blurred the view. I will try on Election Day, and may be one side or the other will stand still. Meanwhile will you not kindly favor me with one of your views, that I may study a good model.

Yours sincerely, B. JOHNES.

FAR-AND-NEAR, September 8, 1888.

To B. JOHNES,—I inclose some views (bromides), of our house and gate-lodge. They are not models of technical perfection, but may give you an idea of what to avoid. Yours, S. A.

NEW YORK, September 12, 1888.

To S. A.,—Thanks for the lovely views. Indeed I should never wish to avoid so hospitable a looking house should I be fortunate enough to pass through Far-and-Near, which is not likely while I am chained like a prisoner to my type-writer, and I am worked to death by everybody, from the senior partner down to a salesman on six hundred a year! Forgive this personal paragraph. To return to your prints—how I wish they were clearer! Is that blue artistic? Is your house gray stone, and did you take it in the rain? I ask because I want to learn. Yours sincerely, B. JOHNES.

FAR-AND-NEAR, September 13, 1888.

To B. JOHNES,—I inclose a "blue" to show you that our house is painted white and the sun shone when I took its picture. I fear my iron and oxalate solutions were stale when I made the bromide I sent you. I wish you could see the original with my eyes. Yours in haste, S. A.

NEW YORK, September 17, 1888.

To S. A.,—I hope I do not presume when I say in reply to yours of September 13—which I have delayed answering because I was so dreadfully busy—that I should be well satisfied could I see your house with my own eyes, but this is impossible; besides you probably have no time for personal interviews with your pupils. I inclose a view of my desk down here at Aquarelle's, my first attempt at an interior. Yours sincerely, B. JOHNES.

FAR-AND-NEAR, September 18, 1888.

To B. JOHNES,—I think the view technically good, but the composition lacks one thing—you, yourself. Why not focus on the elevator boy or the senior partner, then seat yourself at your type-writer and let the most intelligent of the two draw the slide, uncap and cap the lens for you. I require this for your next lesson. Yours cordially, S. A.

NEW YORK, September 29, 1888.

To S. A.,—I really couldn't send you a picture of myself. Yours,

B. JOHNES.

FAR-AND-NEAR, September 30, 1888.

To B. JOHNES,—Why not? Yours urgently, S. A.

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NEW YORK, October 1, 1888.

To S. A.,—Certainly I will not send my picture to a stranger.

Yours, B. JOHNES.

FAR-AND-NEAR, October 2, 1888.

To B. JOHNES:

DEAR FRIEND,—I am so sorry to have offended you. Why can't you send me your picture? Were you as homely as possible I should not like you less for a photographic pupil, indeed I should not. I should not like you less in any case, and besides I have taken your fee and must teach you until the end of the year, even if I did not like you. Remember I expect obedience from pupils.

Yours, S. A.

NEW YORK, October 3, 1888.

To S. A.,—I return your letter unopened and unread. I don't care a pin for the fee I have paid you—and I care less whether or not you like me—but as it happens, I am not considered homely.

Yours, B. JOHNES.

FAR-AND-NEAR. November 3, 1888.

To B. JOHNES,—I have waited a month to hear from you. Don't be foolishly angry about nothing. What have you been doing with your camera?

Respectfully, S. A.

NEW YORK, December 3, 1888.

To S. A.,—I have waited to get in a better humor with myself. Forgive my rudeness, please. I like your letters and hope you like mine. Our's was only a school-girl quarrel after all.

Yours, B. JONES.

FAR-AND-NEAR, December 4, 1888.

To B. JOHNES,—You did keep me waiting a doleful time, and all for nothing, as far as I can see. However, your letter makes me very happy. Do I like your letters? Faith and I do! and I like you, too! I like you better than your letters, and I think you the nicest fellow I ever knew—forgive the familiarity. Now when will you send your picture?

Yours most truly, S. A.

NEW YORK, December 10, 1888.

To S. A.,—I am ready to send myself to you the minute you send yourself to me—no sooner, no later! How your words cheer me! I am so lonely here in New York. I have no friends at all; but you like me, you say. Why, I love you; really and truly I do. The days are too dark and short for photography, but life is brightened with thoughts of you, and I think of you all the time. Don't you love me?

Yours, B. JOHNES.

FAR-AND-NEAR, December 12, 1888.

To B. JOHNES:

DEAR PUPIL,—You write to me quite like a girl, and to tell the truth your enthusiasm warms me up. I must see you—I must see your picture. I never said "I love you" to anybody yet, but, bless my soul, there is something fetching about your letters. I am half afraid you will be disillusioned when you see

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me, and that will never do, for I could end my days in your company. Shall I come to town to you? Have you time to see Yours devotedly, S. A.

New York, December 16, 1888.

To S. A.,—I feel like a girl when I get your nice letters, and the fun I get out of photography makes me young again—ever so young. I have not told you before, but I have given up birthdays—have had my full share and have lived them all down. I am twenty-three! Let us agree to exchange pictures before we meet, and each shall look at the other's at the identical moment—say on Christmas Eve. Good-by, good friend, and good night. I love you, altho' I have never seen your face. Always lovingly, B. Johnes.

Far-and-Near, December 17, 1888.

To B. Johnes,—You are capital and so warm-hearted. Now, let us exchange spirit-pictures instead of Christmas cards. Soak a hypo-print of yourself in corrosive sublimate and send it to me, and I will do the same for you. Then on Christmas Eve we will each put the bleached sheet in a hypo wet blotter, warm it with the hand, count ten, and, presto! the picture comes back, and I see how you look and you see how I look. Yours, S. A.

New York, December 19, 1888.

To S. A.,—Agreed! B. Johnes.

[These last two letters crossed.]

New York, Christmas Day.

To S. A.:

Dear Sir,—I thought you were a girl! How dishonorable not to tell me at the beginning of our correspondence. Be man enough to burn my letters and never attempt to see me or write to me again. Yours, B. Johnes.

P.S.—If you have a side in rebuttal for the way you have deceived me, let me know. I can never describe my shame and surprise when, on removing your spirit-picture from the blotter, I saw you were a man. I suppose it is not your fault.

Far-and-Near, Christmas Day.

My dear Miss Johnes,—I would call you Bella if I were sure your initial letter did not stand for Bertha or Blanche or Beatrice or Bessie. It does not matter in the least. I never suspected why you fascinated me so, till I saw your face come up out of nothing in the blotting book.

I thought you were a man, but, oh! I am so glad you are not! Oh, my dearest! that little black inch of curly bang gave me the first hint, but I feared it might be a boy's face till your sweet smile and lace collar came out so clear and sharp. It is the most delicious thing that ever happened to mortal man since Orlando's time!

I know you made the same mistake about me, but never mind; everything is reversed on the ground glass. You've not said a word too much, for it's leap-year, don't you know?

I take the 9.30 A.M. train to town to-morrow, just to wish you a merry Christmas and many happy New Years by my side, for you are my pupil, and my school gives no vacations. Yours for ever, S. A.

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OUR ILLUSTRATION.

WITH the advent of the new year, 1889, and the beginning of a new volume of the BULLETIN, we cannot do better than present our readers with one of the most interesting photographic pictures that it has been our good fortune to secure for a long time. Photographs of the moon have been made before, but they were only about two inches in diameter; that is, this was the size of the best negatives taken by Dr. Draper and others. But here we have a print from the original negative taken in the great Lick telescope in California, and over five inches in diameter. The wonderful definition in the pictures, due to the great accuracy of the lens of the telescope, and the careful development of the plates by Professor Burnham, makes them the most interesting pictures of the moon ever produced by photography. The preservation of this fine detail has been very admirably secured by the use of Anthony's Aristotype paper, which gives better prints than albumen paper when used for such negatives.

The first glimpse of some silver prints kindly sent us last September by Professor Burnham, showed that he had obtained some most remarkable negatives. We at once telegraphed him to let us have the originals, if possible, and he very kindly sent them on. Since that time we have had to contend with some of the worst weather for photographic printing that has fallen to the lot of New York photographers for many years. This has been the cause of the delay in presenting these pictures to the readers of the BULLETIN until the present time. For we were especially anxious that such beautiful negatives should have equally good positives.

In sending on the negatives Professor Burnham very kindly gives the following notes upon their production:

"There is little to say from a photographic standpoint about astronomical photography. The same methods properly employed elsewhere can be used here, and the same precautions are necessary to obtain the best result. The 36-inch objective of the Lick telescope is simply a colossal camera lens with a focus of about forty-seven feet. There is this difference, however, in the use of the larger lens, that a small angle, ordinarily only one or two degrees, and in the case of the moon about half a degree, are used, while with the common rectilinear lens the plate embraces an angle of forty degrees and upwards. Hence, stops are not necessary to produce a sharp picture with the astronomical objective, as they would be if a plate were used proportional to its focal length.

"The pictures of the moon were made on 8 x 10 plates, the Seed, No. 26, being generally used, in fact exclusively, as long as they lasted. It was found that they made cleaner, better and generally more perfect negatives than any other plates which were tried. So far as the moon is concerned, a fast plate is unnecessary. As the time of exposure could not conveniently be made less than half a second, it was found necessary to reduce the equivalent time by cutting down the aperture, and nearly all the negatives were made with the aperture contracted to twelve or eight inches. Larger stops of sixteen, nineteen and twenty-three inches were tried, but it was found difficult under ordinary conditions to avoid over-timing. The plates were developed as I would develop any ordinary landscape picture. The same conditions are found in the one case as in the other. The pyro and carbonate of soda developer, which I have used for several years for developing all negatives and positives for the lantern, was used here. This formula was originally given by Professor Garrison, and is substantially the same as that

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now recommended by the Seed Company. The exposures were made by drawing and returning as quickly as possible a light pasteboard slide working in front of the plate-holder, the slide of which had been previously drawn. The telescope was of course being carried by the driving-clock.

"Photographs of the stars, which require an exposure of from fifteen minutes to an hour or more, will be undertaken as soon as the telescope can be made to move with so little friction as to allow the clock to carry it steadily for the time necessary to get stars of the lower magnitudes. When this is done, we shall probably be able to reach farther out into space than has ever before been done."

OUR LAST ILLUSTRATION.

In our hurry to prepare the pictures of Mr. Edward Anthony, we unfortunately omitted to mention the fact that they were produced from negatives made by Mr. Louis Alman, of Fifth avenue, New York, and among the best ever made of Mr. Anthony. The prints were made by Mr. E. Bierstadt, of Reade street, New York, by his beautiful Artotype Process.

OBITUARY.

Maurice N. Miller.

This well-known photographic worker died on December 8th last, after a very short illness. It is hard to realize that he is no longer with us, he looked the picture of health and vigor.

Dr. Miller was born at Keene, N. H., in the year 1838. His early education was at Leeland Academy. His first photographic work was with Howe, of Brattleboro, Vt. About this time he took up the study of medicine under Dr. Blakely, and graduated at Philadelphia as M.D. at twenty-one years of age. During the war he served as surgeon to a Pennsylvannia regiment, and afterward came to New York, where he assisted Professor J. W. Arnold at the physiological laboratory of the University of the City of New York. He held this position until the Loomis laboratory was built, and was then appointed instructor in microscopy, a position he held until his death.

Dr. Miller was noted for his skillful handling of tools. The readers of the "International Annual of Photography" will probably remember his excellent articles upon "Zincography." In this he made the original drawings from which the cuts were photographed, and these were among the best in the book. His lucid and interesting descriptions of the various processes are beyond question the best ever written upon the subject. Those who read this essay in the "Annual" will have an idea of the exactness with which his whole life's work was carried on. Among his students and associates at the University he had a name honored among men, and photography has lost a devotee whose place will not readily be filled.

Anthony's Photographic Bulletin, edited by Professor Charles F. Chandler, Ph.D., LL.D., is always bright and newsy. To the photographer, whether amateur or professional, it has become an absolute necessity.—*Geyer's Stationer.*

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ANTHONY'S

Photographic Bulletin.

EDITED BY

Prof. C. F. CHANDLER, Ph.D., LL.D.,
Aided by ARTHUR H. ELLIOTT, Ph.D., F.C.S.
and a corps of practical assistants.

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E. & H. T. ANTHONY & CO., Publishers.

AMERICAN INSTITUTE — PHOTOGRAPHIC SECTION.

INFORMAL MEETING, DECEMBER 19, 1888.

Vice-President J. B. GARDNER called the meeting to order, and said: "Gentlemen and Fellow Members,—The subject we propose to talk about this evening is, 'Photography as Applied to Book and Newspaper Illustrations.'"

In way of introduction allow me to say, that it is certainly gratifying that a number of our leading process men, in response to our call, have furnished us with almost every variety of examples specially designed for book and newspaper illustrations. We are also pleased to have with us Mr. P. G. Cusachs, who will no doubt contribute to the interest and pleasure of the meeting.

As I have been engaged in this line of work for a number of years, I may perhaps be able to say a word or two on this theme.

It has been estimated that about twenty-one thousand papers and periodicals, during the years of 1887 and 1888, have depended on photography as the fountain from which to draw the bulk of their illustrations.

Three thousand of these papers, during the past year, have been regularly supplied by the American Press Association of this city.

Some of our largest daily papers have photographic studios entirely under their own control, and thus a large number of expert operators are kept constantly employed.

In this newspaper work one of the methods used is to take any ordinary photograph and make a negative from it. From this, a print is made on plain paper. It is now taken in hand by the pen and ink artist, who sketches an outline of it and then destroys the photographic impression by means of a solution of bichloride of mercury. It is now a line picture in simple black and white. From this another negative is made, and is placed in the hands of the etcher and electrotyper. The last named making as many electrotypes as will fill the orders made by different papers throughout the country. By this means the same picture may appear in different papers on the same date in a hundred or more cities widely separated throughout the country.

Now, if I should tell you that all this work in preparing the picture for the press is sometimes done in the space of two hours, you might regard it as one of the miracles of the present age, and yet it is a miracle that daily happens.

This class of pictures is, no doubt, the most sketchy and imperfect in which photography plays a part.

There are a number of photo-engraving processes, however, that make very respectable and praiseworthy illustrations, and are often seen in the leading weekly and monthly journals.

The largest number of these, perhaps, is made by the Moss Engraving Company.

There are other processes in use of a higher character, but they are attended with drawbacks that mar their popularity and usefulness. The best class of illustrations that adorn our leading monthlies, and in which photography plays a part, are the designs or paintings of eminent artists photographed on wood, and engraved by experts like Cole, Kingsley and Johnson. Besides the above named methods, there are those of Bierstadt, Day, Kurtz and Edmonds of this city, and Ives and Gutekuntz, of Philadelphia.

Pictures by any of these last named processes deserve the highest commendation, and are no doubt destined to fill a niche in the temple of illustrative art.

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Thus photography, which at first was regarded as a simple toy to gratify idle curiosity, now employs its hundreds of thousands who depend upon it for a support—while at the same time it furnishes a most fascinating recreation to men of culture and refinement, and serves as a developer of intellectual power, mechanical ingenuity and chemical skill.

The Chairman further said: Before calling upon Mr. Cusachs for his contribution in the way of free-hand drawings, it will be well, perhaps, to examine the examples so kindly furnished for our instruction and kindly criticism.

The first are those of Mr. Gutekuntz, of Philadelphia. They consist of portraits, and the exterior and interior of noted churches.

The second are those made by the Moss Engraving Company, and comprise a great variety of subjects.

The third are those of Mr. C. C. Wright, and consist of etchings of the very finest quality.

The fourth and last, though not least, are examples of photogravure by the Edwards process.

These examples of four different processes will give a pretty definite idea of how books and papers may be illustrated at a comparatively small cost, while at the same time it will enable us to better judge of the fitness of each of these processes in the multitudinous uses of illustrative art.

The examples of the above named processes were presented in the order above named by the Chairman, and each process came in for its share of criticism and praise; the latter being decidedly more emphatic than the former. There was also manifested a conscious pride on the part of some of the photo. critics and eulogists that their art was capable of a development that would ultimately drive all self conceited pretenders to high art into fields of labor to which they were better adapted, while at the same time it would only inspire the true artist with more lofty ideals, and the means by which he could more fully realize them.

Mr. BOGARDUS said: "I believe the idea of making sun pictures useful in illustrating works of art dates back to the earliest days of the daguerreotype process. From those days to the present hour this ideal has been constantly in the minds of the fraternity, and experiments without number have been made to reach this goal. Many have failed in their efforts. Much time and money have been expended, with little or no returns. The best energies of many a skillful photographer have been wasted, and yet, out of all these disappointments and perplexities have come a success that the photographer may well be proud of; for it not only enlarges greatly the field of his labors, but ensures him a more reliable means of support."

The Chairman now introduced

Mr. P. G. CUSACHS, who after making some preliminary remarks concerning free-hand drawing, and how it was connected with photography in illustrating the daily and weekly papers, said: "The free-hand drawings I refer to are usually simple outlines of photo. views or portraits. These drawings pass into the hands of the photographer, and negatives are made from them. They are then etched and made ready for the press. As Mr. Gardner has said in his introductory remarks, all this is done in two hours time. Never in all the past history of art has there been such rapid methods of illustrating every conceivable subject, and thus translating it into a language familiar to both savage and civilized nations. Perhaps none of our leading monthlies, or even our daily and weekly papers, could maintain their present reputation without indulging thus freely in this universal language. In this language, however, there is much to be read between the lines; and hence, he who knows nothing of the art of drawing, often loses much of its significance and power to please. Without further prelude, then, I think you will readily perceive how photography may be advanced by the study and practice of the fundamental principles of art. Now, gentlemen, if any of you imagine I came here to teach you how to use some new and valuable photographic formulas I fear the chalk-talk I propose to give will appear in your judgment quite irrelevant; and you will be right, providing there is no relation between photography and the laws of art. In my judgment both science and art are intimately connected with our profession, and the study of either the one or the other cannot fail to make your work the more deserving of commendation.

"Without further words then, I will chalk upon the board a variety of illustrations, some of which you may some day be called upon to photograph from real life; and if they serve only at present as a pleasing pastime, they may at some future time aid your chemical skill in converting them into gold."

The marvelous skill and dexterity Mr. Cusachs exhibited in his free-hand sketches at once attracted the attention of his auditors,

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which he successfully held for more than an hour, and until he had completed the work he had previously marked out for the evening's entertainment.

The Section then adjourned.

COLUMBUS CAMERA CLUB.

Room 40, Pioneer Block, Columbus, O.

DECEMBER 21, 1888.

THE first annual meeting of The Columbus Camera Club was called to order Thursday December 20th, at 8 P. M., with *President* LINCOLN in the chair and thirteen members present. The application for membership of Mr. S. C. Bradford was favorably reported by the Executive Committee, and he was elected by ballot. After the reading of an unusually large number of communications, a vote of thanks was passed to the publishers of Anthony's Photographic BULLETIN for kindnesses shown during the pass year, also to the Society of Amateur Photographers of New York for reports of their proceedings.

The annual report of the Secretary and Treasurer was read, showing a steady development and advance during the past year, in finances, membership and usefulness. The President's report followed. It was a clear, concise summary of the progress of the club, with a number of pertinent suggestions for future consideration, the chief of which were: Separation of the offices of Secretary and Treasurer; increase of dues from $6 to $8 per year, with quarterly instead of monthly payments; addition to the library of certain standard works on photography.

After the close of the President's report, it was moved and seconded "That the offices of Secretary and Treasurer be separated." Motion carried.

The election of officers for the ensuing year resulted as follows: *President*, REV. G. LINCOLN; *Vice-President*, GEORGE L. GRAHAM; *Secretary* F. H. HOWE; *Treasurer*, J. N. BRADFORD.

Executive Committee: G. W. Lincoln, George L. Graham, F. H. Howe, J. N. Bradford, W. H. Miller, John Field. *Membership Committee:* John Field and George L. Graham. *House Committee:* J. N. Bradford and F. H. Howe.

A short lantern exhibition was given after the election, slides being furnished by Messrs. W. H. Miller, F. H. Howe and J. N. Bradford.

FRANK H. HOWE,
Secretary.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

REGULAR MEETING, DECEMBER 11, 1888.

(*Continued.*)

The *President*—In addition to this donation, there have been sent four framed prints of her own work, by Miss Catherine Weed Barnes, one of our members. Mr. Thomas McCollin, of Philadelphia, has sent us a magnesium flash lamp. Mr. E. P. Griswold has sent us his book entitled "The Photographer's Book of Practical Formula."

A vote of thanks was then tendered to the donors.

The *President* announced that the programme for the January meeting had been partly made out, including a paper on "The Detective Camera and How to Use It," with an exhibition of many different cameras, and a report of the Chemical Committee on two or three subjects not yet announced.

Attention was called to the incandescent Welsbach gas burners with which the rooms of the society had been furnished.

After Mr. Osborne's paper there will be an exhibition of some lenses sent by Benjamin French & Co., of Voigtlander & Sons' make, two gotten up on a new principle. They are landscape lenses, and they are said to possess certain very excellent qualities.

Dr. Higgins has brought with him this evening a new detective camera that he will, I believe, kindly show.

Now I come to Mr. J. W. Osborne's paper. Mr. Osborne is well known in the history of photography all over the world, and is the inventor of Osborne's photo-lithographic process, which is in use now universally, and was the foundation of very many of the photo-mechanical processes, and therefore his researches are entitled to a great deal of consideration. (See page 752.)

We will now show some of the work of these Voigtlander lenses which I was speaking of. Mr. Duffield will start on the rounds some samples of the work done by the Euryscope and Voigtlander single landscape lenses.

Mr. NEWTON—Are they single combinations?

The *President*—It is an achromatic single combination lens, capable of instantaneous work.

There are also some samples of the matt and leatherized salted papers, manufactured by Mr. John R. Clemons, of Philadelphia. They are very well known among professionals, and ought to be known here among the amateurs. These samples Mr. Duffield will show you. They have been sent in response to his request, and I think you will find them very interesting. They are very artistic, having a softness and agreeable tone not ordinarily observed in the regular albumen paper.

(*To be continued.*)

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Bibliography.

PHOTOGRAPHIC MOSAICS for 1889. New York: Edward L. Wilson.

This ever-welcome little annual is again on our table with its rich freight of practical hints and suggestions. This year it has several excellent photo-mechanical prints by the Mosstype, Levytype and Albertype processes. As usual the matter condensed into its 144 pages is progressive and useful, from the pens of a number of our best and most practical workers. We should like to give our readers a *resume* of the many good things and practical ones that we find in its pages, and we can only say, obtain a copy for yourselves and see how good it is. Many of the little hints that help you out of difficulties are worth many times the cost of such a volume.

THE BRITISH JOURNAL OF PHOTOGRAPHY ALMANAC FOR 1889. By J. Traill Taylor. London: Henry Greenwood & Co.

As usual, the massive volume edited by our good friend Taylor is a veritable storehouse of photographic lore. It has about 300 pages of articles by the best photographic writers of the day, and a host of valuable and suggestive notes and memoranda by its veteran editor. No photographer can afford to be without it if he wishes to keep up with the times. It is so moderate in price that we cannot conceive anyone too poor to obtain a copy, and the investment will repay him many times.

JAHRBUCH FÜR PHOTOGRAPHIE UND REPRODUCTIONSTECHNIK FUR DAS JAHR 1889. By Dr. J. M. Eder. Halle a. S. Wilhelm Knapp.

This is the third yearly issue of this valuable German year-book; and those of our readers who are familiar with the German language should add this to their works of reference. It contains many valuable things not found in other annuals, and especially those that reflect the patient research of our German friends.

THE AMERICAN ANNUAL OF PHOTOGRAPHY FOR 1889. Edited by C. W. Canfield. New York: Scovill Manufacturing Co.

The third edition of this annual is now before us. It contains about one hundred articles from both American and European writers, mostly the former. These articles cover a little over 200 pages of large type, and are illustrated in many cases with cuts. The paper is good, and the printing is of fine quality. The full page illustrations are an improvement on former years.

What Our Friends Would Like to Know.

N. B.—We cannot undertake to answer questions of a technical character except through the columns of the BULLETIN. *Correspondents will please remember this. No attention will be paid to anonymous communications.*

Q.—F. B. F. writes: I have tried the formula for making dry plates mentioned on page 589 of the "International Annual," and have had much trouble in flowing the plates. The emulsion is so thin that it runs off the plate. Please answer and let me know how much to use on a plate.

A.—You should read Dr. Eder's book on "Modern Dry Plates," issued by our publishers. The fault is probably due to using the wrong kind of gelatine. The details of the methods of working are too long for these columns.

Q.—A constant reader writes: Will you please answer through your valuable columns: 1st. What is the cause of the white spots on the enclosed prints? The formulas used, written on the backs of them. I used Anthony's R. S. paper, without fuming, as I had no ammonia at the time. The spots did not appear till dry, after washing. 2d. Is there such a thing as over-fixing for prints with bath 1 to 8; if left one hour will it injure prints? 3d. Does hypo deteriorate in the crystals? 4th. Can there be too much sulphite of soda in a developer; that is, would double the quantity injure the developer? 5th. Will chemicals keep better in the granular form than in the crystals?

A.—The prints you enclose have not been printed deep enough. Carry the printing to a point where the shadows are without detail; they will come out all right in the toning bath. You cannot use the ready sensitized paper without fuming. The paper now being made is the best we have ever seen; that is, the ready sensitized, if used with ammonia. The white spots will disappear if the paper is fumed well and printed deep. You will make prints brown and more likely to fade if you leave them in hypo too long; twenty minutes (bath, 1 in 8) is long enough. Hypo will deteriorate in crystals if the salt is kept in a warm place, not otherwise. We do not think granular form of chemicals assists their keeping qualities; we should say not. The sulphite in a developer does not exert much influence if there is much more than any given formula

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calls for, unless it crystalizes out; then it becomes useless. But there should always be plenty of it.

Q.—W. B. C. writes: You will kindly favor me by answering the following questions through the BULLETIN: 1st. Give a good formula for a borax toning bath. I use a saturated solution of borax and gold chloride—enough to tone. I want a bright purple tone that will not change in fixing bath. Is there any known method by which the albumen can be taken off of the paper after the picture is toned and fixed? I received some time ago a sample of what was claimed to be the albumen stripped from the paper. If you can give me a method by which it can be done, it will be very valuable to me. Is it possible to make photographs and keep them from fading? If so, how can it be done? Please give me a formula for making porcelain pictures.

A.—Try the following borax toning bath:

A.

Borax.....1 gram— 100 grains.
Water.....25 c.c.— 10 ounces.

B.

Gold chloride.0.1 gram— 1 grain.
Water.....350.0 c.c.— 10 ounces.

Mix in equal parts just before use. We do not know a good method of stripping albumen prints. The films you saw were probably stripped from gelatine plates; such plates are made for this purpose for photo-mechanical printers. We do not know any silver prints that will not fade if made on albumen paper. Prints on plain paper are more permanent, and platinum prints are the most permanent of all. For porcelain pictures use opal glass plates; these are made for that purpose and can be purchased.

Q.—H. C. K. writes: Will you please inform me what action acetate of soda has in a toning bath on a silver print? Please let me know through your next BULLETIN.

A.—When the bath is not too alkaline, it makes the prints tone brown. If a good excess of alkali is present it appears to have little effect.

Views Caught with the Drop Shutter.

As we go to press we receive a handsomely bound copy of the *St. Louis Photographer* for 1888. We tender our best thanks to Mrs. Fitzgibbon-Clark for her kind donation, which adorns our library.

Messrs. MARCEAU & POWERS, the photographers of Indianapolis, have recently made some very handsome pictures of President-elect Harrison, making seventeen negatives of the General in a few seconds over five minutes. This is modern photography.

Mr. WILLIAM GARRISON REED, of Boston, has recently devised a set of gummed tickets, to be pasted on lantern slides so that they can be seen on the edge of the slide when it is in the storage box. This is a very neat idea, and we are indebted to Mr. Reed for kindly sending us a set. They are partially perforated and readily separated from the sheets they are printed on.

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WHAT PEOPLE ARE NOT TO READ.

THEY HAVE ARRIVED.

THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC

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It will be embellished by a Frontispiece consisting of a Portrait of H. R. H. The Princess Victoria of Teck, printed on Argentotype (Bromide) Paper by Messrs. Samuel Fry & Co., from a Negative taken by W. J. Byrne on a Kingston Special Plate. It will also contain a Phototint, from a Negative by P. L. Waterlow, Esq., on a Thomas' Pall Mall Plate.

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MILWAUKEE, WIS., September 10, 1888.

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See advertisement on page xxviii.

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Wanted—A young man to learn photography. Must be fairly educated, pratically neat, and have some snap about him. A rare chance and a good home to the right person. Address G. F. C. M., Plainfield, N. J.

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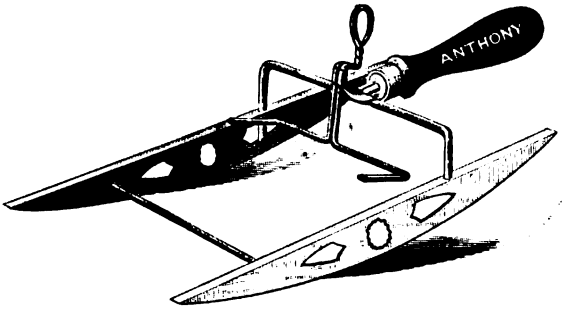
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It is a valuable edition to our literature; a mine of facts. You deserve gold credit. I have only partially gone through it yet, but I bring up something at every turn. S. R. Stoddard, Glen Falls.

It far exceeds any expectations I had formed of it, and I really feel quite surprised at noting the list of distinguished contributors. George Vaux, Jr., Philadelphia.

The "Annual" gives facts, forms and formulas, modes, mixtures and manipulations from A to Z. Every intelligent worker should have it handy, where he can refer to it at all times. A. Bogardus.

You and W. H. Harrison may well feel proud over it in every respect. Jex Bardwell.

It is gotten up in fine form, and very many of the contributors tell me things which I am glad to know. Every purchaser of this volume will get many times their money's worth if they are of the progressive sort. A. C. Campbell, Bridgeport.

Allow us to compliment you upon the finest photographic publication we have yet seen from an American publisher. J. C. Lathrop.

I have read many of the articles and consider the editors have made a book suited to all tastes. The shape of the volume is more convenient than the usual form of annuals. Thank you for so much pleasure. Adelaide Skeel.

I shall read with much pleasure the neat and well-compiled volume. John G. Bullock, Philadelphia.

It is none the less welcome because it has been somewhat delayed, and may properly enough be called "International."—*Photographic Times.*

Think it by far the most instructive Annual I have ever read. That article by Capt. Pizzighelli on "The Platinum Print" is what I have been looking for a number of years. Milton B. Punnett.

The Editors are to be congratulated upon the great variety introduced in the "Annual," and the general excellence of its contents.—*The British Journal of Photography.*

If the reading matter is at all in keeping with its neat exterior, as I have no doubt it is, I have a rare treat in store for myself. W. Irving Adams.

This "Annual" is literally surcharged with interesting and valuable papers on a great variety of subjects connected with the art and science of photography. We notice the familiar names of many who have labored earnestly to advance the cause of photography, besides many new signatures to papers, the contents of which give lively promise of an enlistment of active workers to our ranks. Amongst the many pleasant things in the "International Annual," we must not forget the graceful introduction of the Editors.—*American Journal of Photography.*

All the contributions are from men well known in Europe and America. It is one of the most interesting works connected with photography we have ever had, and predict an immense sale of it for the publishers. Each article would have made an excellent paper to have read at our Convention. No photographer should be without this work, and everyone can afford to purchase it, as the price is within the reach of all.—*The Photographic Eye.*

The work is an important one. It contains 643 pages of reading matter, contributed by a wonderful array of authors from all parts of the world. The editors are to be complimented highly upon their indefatigable industry in collecting so much splendid material together. No one but a bookmaker knows how much work this involves. There are fifty articles we should like to quote words of wisdom from. Everybody should have a copy.—*The Philadelphia Photographer.*

In it we have the opinions and writings of English, American, German and Austrian photographers side by side, which is of itself a new but very agreeable departure. There is also much valuable information on emulsions, special developers, and photo-engraving processes, besides illustrations of new and novel apparatus.—*Scientific American.*

Compliment you upon the beautiful get-up of the volume. R. L. Maddox, M.D.

It does the greatest credit to its editors and publisher; indeed, it is a book that does credit to photography tself, and one of which photographers of every name and nation may well be proud. W. Hanson.

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"The International Annual" I consider a great success. GEORGE MANSFIELD.

I have looked at many of the articles and there seems to be a great deal that is interesting in it.
Hon. J. G. P. VERECKER.

It is larger than I expected, and contains a vast mass of matter. Rev. H. ALDWIN SOAMES.

Congratulations on the success of the work. C. V. J. POIRIN.

The new manual speaks well for the efforts you have made and must gratify you. JOHN HARMER.

I received your beautiful volume this morning. It is edited in a smart, business-like and readable manner. It is printed as no photographic publication has ever been printed before—and illustrated with gems of portraiture.
ADOLPH W. BEER.

It is beautifully got up and reflects great credit on its editors and publishers. B. TINDALL.

The "Annual" is a very considerable success and I hope will continue to be so from year to year.
CHAPMAN JONES.

The Summer Annual is evidently quite a drawing-room volume and a book to aid and enlighten one in the photographic path. J. CHESTER JERVIS.

P. S.—The "Photophane of Dawn" is exquisite.

The photogravure is an excellent piece of work. The photophane seems good. C. HETHTON LEWIS.

"The International Annual," No. 1, in which you have so admirably succeeded. The number of writers and variety of topics is far beyond all my expectations. You have turned out what is really a standard work of great intrinsic value, which I shall prize highly as a text-book. B. J. SAYCE.

It is the best collection of readable articles that has been done in this form. It is not overloaded with formulæ, tables and figures, as too often happens. H. P. ROBINSON.

I think it is a very desirable book to own. ED. F. WILDER.

The matter contained in the book, to the progressive photographer, is worth more than fifty times the price I paid for it. WM. BELL.

I sincerely hope that the same style of matter will be brought out annually. It will occupy a place of honor in my library. E. BIERSTADT.

FREDONIA, N. Y., September 10, 1888.

"The International Annual" is full of interest. I have read it with more pleasure and benefit than any similar publication gave me. Again I thank you. Yours, E. K. HOUGH.

I have been reading "The International Annual" of Anthony's Photographic BULLETIN (for 1888) and must thank you and our dear friend Harrison most heartily for the service you have rendered to the photographic fraternity in compiling a work that introduces us to such a large number of distinguished writers, both in England and America. Surely, it is a great pleasure to commune with such spirits on subjects that occupy no small portion of our time, and with which we must be practically acquainted, if we would be successful in our work. Many of us would not hesitate to take long journeys and spend much time and money for a personal interview with such noteworthy teachers, and yet we often hesitate to make their acquaintance and listen to their most valued thought, when we may do so in our own private study and at small expense. It is often said by some that very little can be learned from books, and this is no doubt true with the class of students whose education is based upon observation and oral instruction, and whose expertness in their work is due simply to constant practice. The best writers might not be able to compete with these in their special work; but this is no valid reason why such writers should never be consulted. It is not their business or aim to be expert in working the processes they record, but expert in describing and portraying these in choicest forms of speech. Our greatest love for Shakspeare is because he tells us things we know, but never could express. For the same reason the Annual above referred to will, no doubt, be often studied by every aspiring student of photography, for in it he will find recorded not only what he knows himself, but the combined experience of many others who have been striving to reach the highest excellence. Thus will he gather about him the most advanced spirits of his day and generation, and, aided by their strength, reach the goal for which he strives. J. B. GARDNER.

The "Annual" come to hand, and I have been very much interested in reading it. It is full of good things, and many of the articles are gems of thought and of great practical value. E. M. ESTABROOKE.

It is the best annual published. G. S. BLISS.

It promises to be very entertaining and instructive reading. GEORGE W. GRAY.

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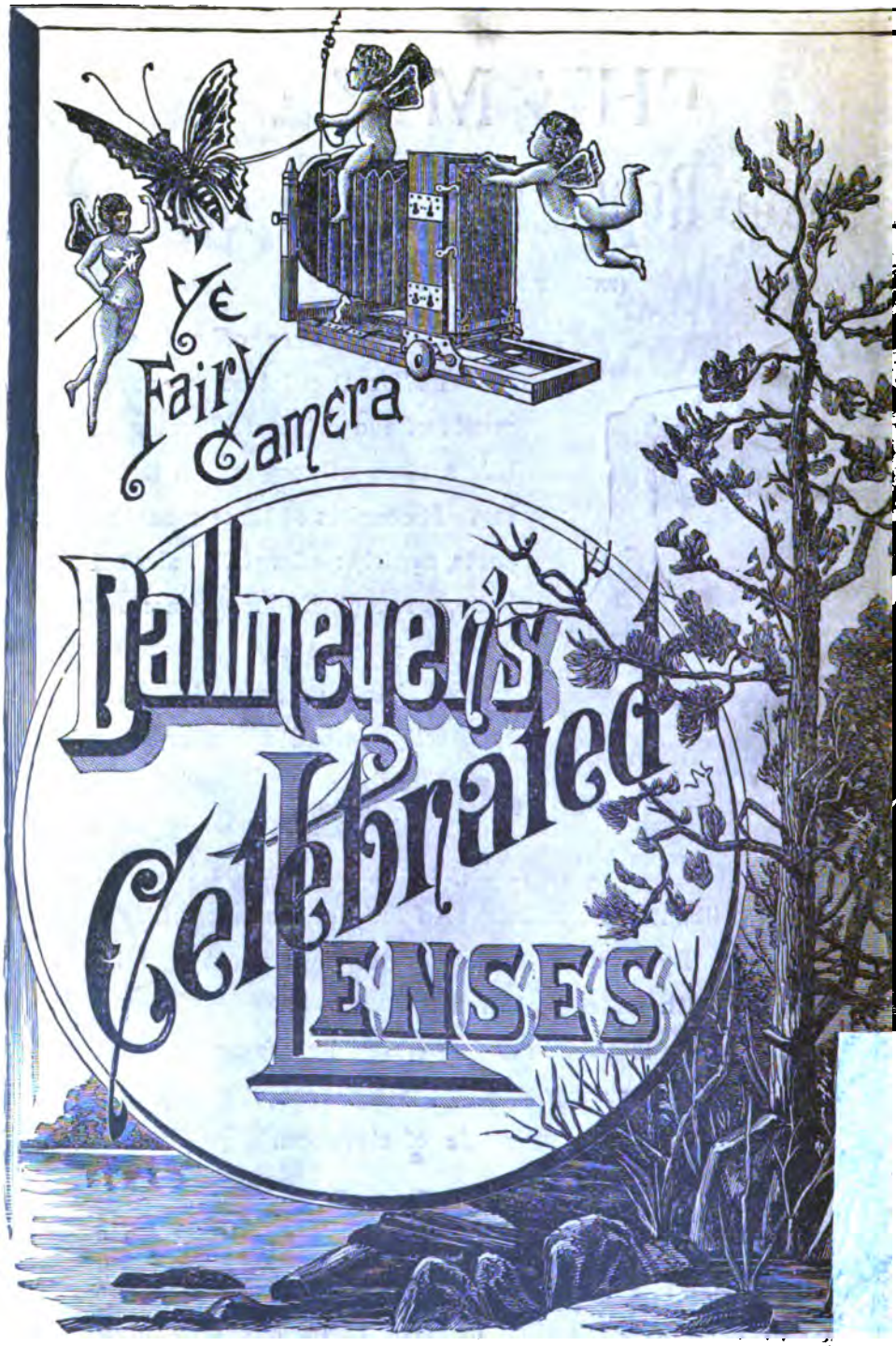
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For the Amateur and the Professional

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Vol. 20. January 26, 1889. No. 2.

ANTHONY'S Photographic BULLETIN





Edited by
PROF. CHAS. F. CHANDLER, Ph.D. LL.D.
Prof. of Applied Chemistry in the School of Mines,
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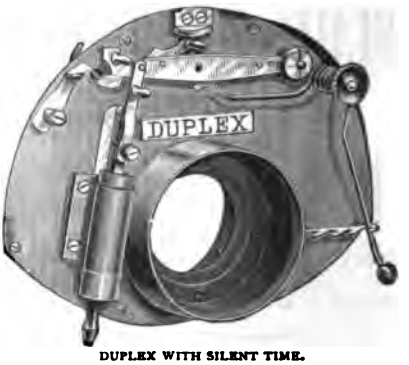
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The Prosch Rapid is capable of making exposures so rapid as to test to the utmost the skill of the most expert operators to develop. It is only for instantaneous work, such as taking horses at most rapid gait; athletes running, jumping; divers, etc., etc. Although operating between the lenses it is entirely different from the Duplex. Made in two sizes: No. 1, 1-inch opening, price, $18; No. 2, 1⅛-inch, $22.

The Duplex Stereoscopic fills perfectly the want of a time and instantaneous shutter for Stereoscopic work. It consists of two Duplex Shutters on one frame, operated by one lever and one release, and consequently gives two identical exposures. Made in two sizes: No. 1, ¾-inch opening, $18; No. 2, ⅞-inch opening, $19.50. Lenses are arranged at 3¼ inches from centers; but this will be increased, if ordered, up to 3¾ inches for $1 additional. Rotary Stops, $2; Flange Collars, when required, 75 cents. Silent time attachment, $1.50; combined with slow instantaneous, $2.

The Duplex Detective is a reliable, compact and efficient Shutter for Detective Cameras, which can be used for both time and instantaneous work. Release for instantaneous is by a push trip (pneumatic if desired). Time exposure mechanism is same as silent self-setting time to regular Duplex Shutters, by which instantaneous exposures can also be made by pressure to pneumatic bulb. Price, including fitting to Camera and Rotary Stops, $15.

THE EVER POPULAR DUPLEX SHUTTER still retains its lead of all others, whether of home or foreign production. The Rotary Stop is considered by an army of users an indispensable adjunct to the shutter, likewise the silent, self-acting time, and slow instantaneous attachment, which operates shutter by direct pressure of air through pneumatic device.

DUPLEX ENLARGED REVISED LIST.

Numbers.....	00	0	0A	1	1A	2	2A	3	3A	4	5	6	7
Openings, inch...	⅜	½	1	1⅛	1⅜	1⅝	1⅞	1⅝	2	2¼	2½	3	3½
Price.....	$11.50	$12	$12.50	$13	$13.50	$14	14.50	$16	$19*	$20*	$22*	$24*	$27*

* Including silent time attachment.

Rotary Stops up to No. 1, $1.50; above that, $2. We do not make Rotary Stops for sizes larger than No. 2A, except by special agreement. Silent time attachment same prices as Rotary Stops.

When Flange Collars are required, as on Ross and other lenses similarly mounted, 50 cents extra. Shutters can be furnished for most standard lenses, fitted ready for use, but it is to customer's interest to forward his lens tube with order, otherwise perfect fit is not guaranteed. These shutters are owned and manufactured solely by the Prosch Manufacturing Co. None genuine without our stamp. Circulars containing full information forwarded on application.

PROSCH MANUFACTURING CO.,
No. 389 BROOME STREET, NEW YORK.

THROW AWAY YOUR BOTTLES
AND
Use Anthony's Toning Powders.

These powders are put up in small packages, and especially recommend themselves on account of the little room they take up. Directions for use very simple.

DIRECTIONS.—Dissolve one bottle of Anthony's Dry Gold in 7½ ounces pure water. To Use—Dissolve one of the packages of Toning Powder in 7 ounces of luke-warm water, and add 1 ounce of the Gold Solution.

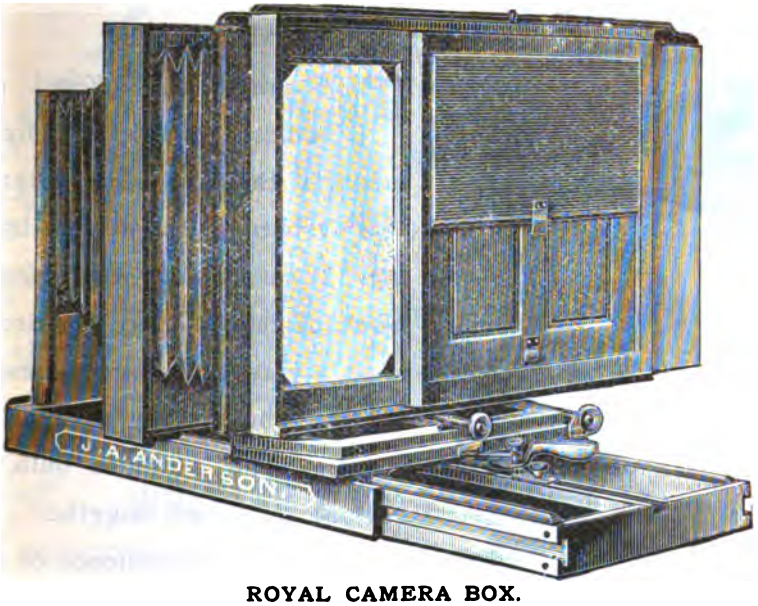
Per box, containing 12 packages, - - 15 cents.
" " 24 " - - 25 "
" " 48 " - - 40 "

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J. A. ANDERSON,

Manufacturer of Photographic Apparatus,

63 and 65 EAST INDIANA STREET, CHICAGO.



ROYAL CAMERA BOX.



GEM POSER.



IMPERIAL COMBINATION CHICAGO CHAIR.

AMATEUR AND PROFESSIONAL OUTFITS ALWAYS ON HAND.

PRICE LIST SENT ON APPLICATION.

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THE MIZE
Pocket Repeating Flash Lamp.

(PATENT APPLIED FOR.)



THE lamp here offered embodies the latest improvements of the original inventor of this system of magnesium lighting. It consists of three essential parts, namely: a large flat alcohol lamp, a receptacle for magnesium holding about sixty grains, and a large hand pressure bulb, all compactly joined together, but separable for convenience of carrying. The apparatus when properly charged will give with a single pressure on the bulb, an intense and brilliant light sufficient to fully expose from fifteen to twenty feet. By repeated pressures large interiors may be photographed with wide angle lenses.

The apparatus is held in and operated by the same hand, and requires no other support, and the light may be projected in any direction, and at any angle of elevation.

Price Complete, - - - - - $3 00

Pure Magnesium, per ounce, post-paid, - - 50

CAUTION.—The so-called "flash-powders" should never be used in this or any other form of lamp, but only pure magnesium.

E. & H. T. ANTHONY & CO., Sole Agents,

591 BROADWAY, NEW YORK.

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WHEELER & WILSON'S "New No. 9."

THE CHEAPEST MACHINE FOR THE FAMILY BECAUSE IT IS

The Easiest to Learn,
The Handiest to Manage,
The Lightest Running,
The Least Noisy,
Made of the Best Materials
The Best Finished,



THE MOST DURABLE
AND
DOES PERFECT WORK.
MANUFACTURERS USE
WHEELER & WILSON'S
No. 12.

ADDRESS

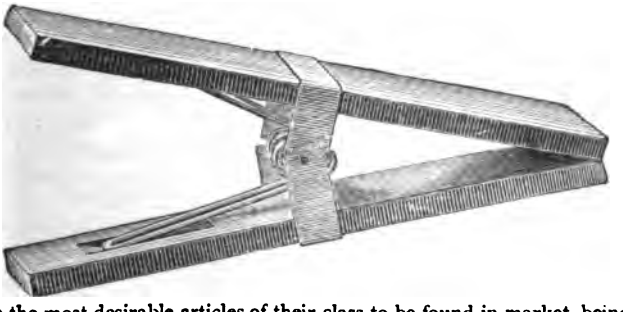
WHEELER & WILSON M'F'G CO.,

BRIDGEPORT, CONN., or 833 BROADWAY, NEW YORK.

REVISED PRICES OF

LOCKWOOD'S PHOTO CLIPS.

(Patented.)



These are the most desirable articles of their class to be found in market, being substantially made in the best manner, and the fact that they never break or give way in any particular must recommend them to all. The springs are made of first quality brass wire and the wood is very hard and durable. They are made in two sizes and various styles, as follows, the cut showing exact size of the large clip.

No. 15 A	Small, 2½ inches, plain, chamfered,	per gross,	$4 80
" 15 B	" " with hook, "	"	5 50
" 15	" " and hole chamfered,	"	6 00
" 1	Large, plain,	"	6 00
" 14	" with hook,	"	6 80
" 17	" " hole chamfered,	"	7 00
" 18	" " hook and hole chamfered,	"	7 20

E. & H. T. ANTHONY & CO., Sole Agents.

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VERGARA FILMS.

LIGHT. ❋ TOUGH. ❋ FLEXIBLE.

No stripping, can be printed from either side.
Developed same as Glass.
Can be used in the ordinary carriers.

PUT UP IN PACKAGES OF ONE DOZEN EACH.

3¼ x 4¼, per package, - -	$0 90	5 x 8, per package, - -	$2 70
4 x 5, " - -	1 40	6½ x 8½, " -	3 80
4¾ x 6½, " - -	2 00	8 x 10, " - -	5 00

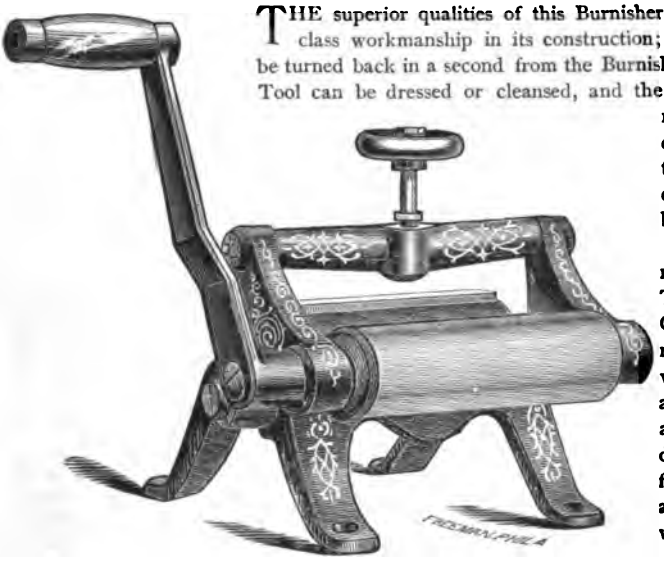
Anthony's Patent FILM HOLDERS for using Vergara Films or Negative Paper in the ordinary Dry-Plate Holder.

3¼ x 4¼, each, - - -	$0 20	5 x 7, each, - - -	$0 30
4 x 5, " - - -	25	5 x 8, " - - -	30
4¼ x 6½, " - - -	30	6½ x 8½, " - - -	35
8 x 10, each, - - -	$0 40		

E. & H. T. ANTHONY & CO., Sole Agents, 591 Broadway, New York.

ENTREKIN'S
EUREKA BURNISHER

FOR IMPARTING A BEAUTIFUL FINISH TO PHOTOGRAPHS.



THE superior qualities of this Burnisher consist: first, of first-class workmanship in its construction; second, the Roll can be turned back in a second from the Burnishing Tool, so that the Tool can be dressed or cleansed, and the Roll be immediately replaced ready for operation without having to handle hot plates, etc., as in the other burnishers.

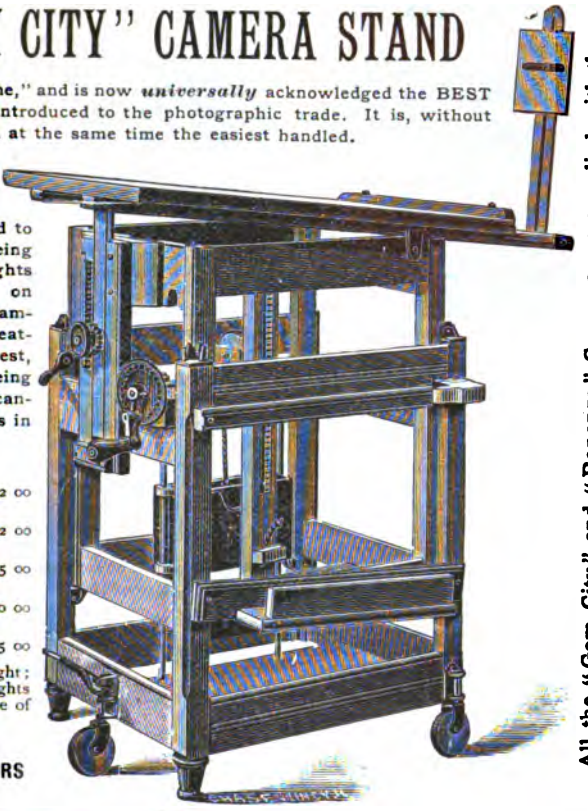
It has also the removable Burnishing Tool patented by W. G. Entrekin. The Burnisher can be heated with gas, coal oil, or alcohol. Another great advantage: it will produce a beautiful satin finish to photographs, and any boy can work it.

E. & H. T. ANTHONY & CO., 591 Broadway, New York, Agents.

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THE "GEM CITY" CAMERA STAND

has stood the "test of time," and is now *universally* acknowledged the BEST CAMERA STAND ever introduced to the photographic trade. It is, without doubt, the most rigid and at the same time the easiest handled.



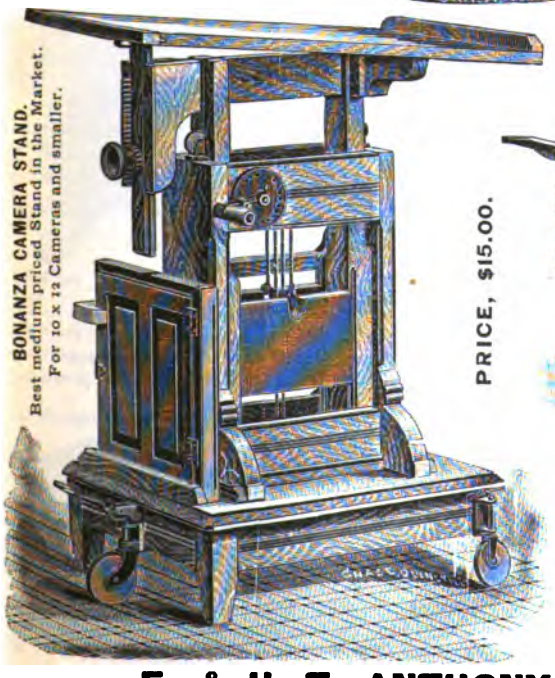
No strength is required to elevate the Camera, it being counterbalanced by weights sliding up and down on grooved guides; thus the Camera being as rigid at its greatest height as at the lowest, the center of gravity being always the same, which cannot be said of many stands in the market.

No. 1, for 4-4 to 10 x 12 cameras, 30-inch bed.....$22 00
No. 2, for 11 x 14 and 14 x 17 cameras, 40-inch bed.....22 00
No. 3, for 17 x 20 and 18 x 22 cameras, 48-inch bed..... 25 00
No. 4, for 20 x 24 cameras, 60-inch bed..... 30 00
No. 5, for 25 x 30 cameras, made to order only..... 35 00

Nos. 1 and 2 have one weight; Nos. 3, 4 and 5 have two weights and base to correspond to size of bed.

FOR SALE BY ALL DEALERS

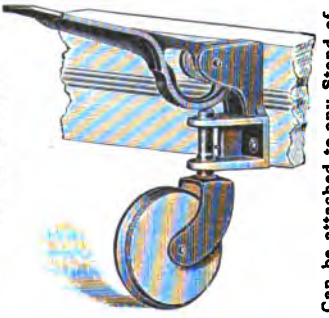
All the "Gem City" and "Bonanza" Cameras are supplied with the "Gem City" Lever Caster without extra charge.



BONANZA CAMERA STAND.
Best medium priced Stand in the Market.
For 10 x 12 Cameras and smaller.

PRICE, $15.00.

"Gem City" Lever Caster.



Can be attached to any Stand of our make.

PRICE, $1.00.

MANUFACTURED BY

J. H. ALTHEIDE & BRO.,

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E. & H. T. ANTHONY & CO.,

Sole Agents for all Territory East of Cleveland and Cincinnati and the South.

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ANTHONY'S

BROMIDE



BROMIDE

IMPROVED RELIABLE BROMIDE PAPER.

(PATENTED.)

FOR CONTACT PRINTING AND ENLARGEMENTS.

After many and costly experiments we have succeeded in producing a Bromide Paper which far excels any heretofore made, and which we are enabled to make perfectly uniform.

This paper we now introduce to the trade under the name of Improved Reliable Bromide Paper, feeling assured it meets the requirement for an absolutely reliable article.

This paper we are obliged to sell at a rather higher price than the paper we have hitherto made; but as it will be of superior quality, and also has our guarantee, it will be well worth the difference to the purchaser.

The Improved Reliable Bromide Paper will be made both in quick (manilla color wrappers) for use with Cooper Enlarging Lantern, and in slow (blue wrappers) for day-light.

PRICES.

CUT SHEETS.

SIZE.	PER DOZ.	SIZE.	PER DOZ.
3¼ x 4¼	$0 25	11 x 14	$3 00
4 x 5	40	12 x 15	3 35
4¼ x 5¼	50	14 x 17	4 50
4½ x 6½	55	16 x 20	6 00
4¾ x 6¼	60	17 x 20	6 40
5 x 7	65	18 x 22	7 50
5 x 7½	70	20 x 24	9 00
5 x 8	75	22 x 27	11 25
6½ x 8½	1 00	24 x 30	13 50
8 x 10	1 50	25 x 30	14 00
10 x 12	2 25	24 x 36	16 00
10 x 14	2 65	30 x 40	22 50

IN ROLLS (10 Yards).

	PER YARD.		PER YARD.
10 inches wide	$0 56	20 inches wide	$1 12
11 "	62	22 "	1 24
12 "	68	24 "	1 35
14 "	79	25 "	1 40
16 "	90	30 "	1 68
18 "	1 00	31 "	1 74

EXTRA LARGE SIZES.

	PER YARD.		PER YARD.
33 inches wide	$1 85	37 inches wide	$2 10
35 "	1 96	41 "	2 30

These sizes are larger than anything that has ever before been attempted. ANTHONY'S PATENT RELIABLE PAPER is coated by the most perfect and the largest machinery ever designed for the purpose, and is warranted uniform in quality and capable of producing the most beautiful results photographically.

The grades are H. G., heavy grained; H. S., heavy smooth; L. S., light smooth, all at one price.

WE DO NOT MAKE ENLARGEMENTS FOR THE TRADE.

NOTICE.—Our Bromide Paper is made under U. S. Letters Patent to T. C. Roche, dated February 8, 1881, No. 241,070. We have commenced a test suit in the United States Circuit Court for the Southern District of New York, against the Eastman Dry Plate and Film Co., George Eastman, Treasurer, and the Scovill Mfg. Co., in which we claim that the paper manufactured by the Eastman Co. is an infringement of our patent, and the Scovill Mfg. Co. are sued as sellers of it. This suit we shall press as vigorously as possible. In the meantime we deem it our duty to ourselves and to the trade to caution all persons against infringing our patent, as dealers are liable equally with the manufacturers for both damages and profits.

E. & H. T. ANTHONY & CO.

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MAGIC CAMERA STANDS—THE BEST MADE.



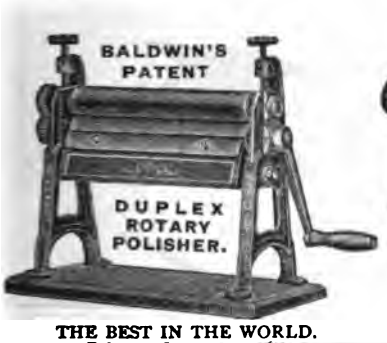
No. 1. 8 x 10.....$12.00



No. 2. 8 x 10 to 11 x 15...$15.00



No. 3. 14 x 17.....$20.00
" 4. 18 x 22 and 20 x 24..... 25.00



THE BEST IN THE WORLD.
Prices, $18, $25, $35 and $45.



CENTENNIAL CHAIRS
Very Popular and Cheap.



BALDWIN'S BABY HOLDER
Has No Equal.



Raw Silk...$12.50
Velveteen... 14.50
Plush..... 16.50

THE PATENT QUEEN POSERS.
The Most Useful Chair ever invented. Prices include Circular Arm and Back Rest.



No Studio Complete Without It.
Send for Sample Page.



THE COMMON SENSE TRAY
Is the Best and Cheapest Large Tray Made.



THE WONDERFUL SUTER LENS,
HAS NO SUPERIOR IN QUALITY, AND
NO EQUAL IN PRICE.

The above represent a few of our leading specialties, all of which (except Suter Lenses) we manufacture and control. *All these items are the best in the class they represent.* **Take no other.** Send for complete descriptive circulars of any or all these items, or any article needed.

SMITH & PATTISON,

261 and 263 State Street, - - - - - - - - CHICAGO.

Wholesale Photo Supplies of every description.

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HENRY G. PEABODY,

DEALER IN

PHOTOGRAPHIC SUPPLIES,

53 Boylston Street, Boston.

SOLE AGENT IN THE UNITED STATES FOR THE

WRAY LENSES.

Send for Catalogue.

NEW ENGLAND AGENT FOR THE

HOOVER PLATE.



ARROW BRAND

TRADE MARK

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SEED'S FILMS,

NEGATIVE,

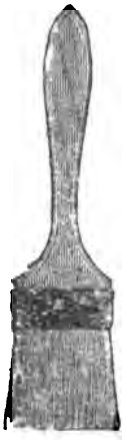
POSITIVE

and EBONITE,

will be ready for market in two weeks. **Notice advertisement in next issue.**

M. A. SEED DRY PLATE CO.

HARD RUBBER SET AND BOUND PHOTOGRAPHERS' BRUSHES.



THE bristles of these Brushes are secured by first immersing the butts (or stiff ends) of the bristles in soft rubber; they are then put upon the end of the handle (not around it as in the old way); a belt of rubber combined with metal is wound around the whole, covering the butt of the bristles, and conforming to a groove running around the adjoining end of the handle. The portion of the brush covered with rubber and metal is then placed in a die and vulcanized (or hardened) under heat and pressure. The result is a solid vulcanized head, in which the bristles are so thoroughly imbedded that it is impossible for them to get loose. The handle being dovetailed into the head (see sectional illustration), is also firmly secured.



It is self-evident that this method of constructing brushes is far superior to the old modes. These brushes are not affected in any manner by any solution in which they may be used, and they can be kept for any length of time in either damp or dry atmosphere without injury.

Prices are as follows:

Width.			Each.	Width.			Each.
1 inch	Camel's Hair	.....	$0 38	1 inch	Bristle, paste	.....	$0 20
1½ "	"	.....	57	1½ "	"	.....	25
2 "	"	.....	75	2 "	"	.....	35
2½ "	"	.....	95	2½ "	"	.....	45
3 "	"	.....	1 13	3 "	"	.....	50
3½ "	"	.....	1 85	3½ "	"	.....	75
4 "	"	.....	2 10	4 "	"	.....	95

E. & H. T. ANTHONY & CO., 591 BROADWAY, NEW YORK.

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ESTABLISHED 1865.

JNO. G. HOOD, *Chairman.* WM. D. H. WILSON, *Treasurer.* JOS. P. CHEYNEY, *Secretary.*

WILSON, HOOD, CHEYNEY CO. Limited.

Sole Agents
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FOR THE

Ross Lenses

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PHOTO SUPPLIES

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OUTFITS FURNISHED AT ONCE. COMPLETE PRICE LISTS FREE.

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LARGE STOCK OF SUPERIOR

Cards and Card-boards

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A. M. COLLINS

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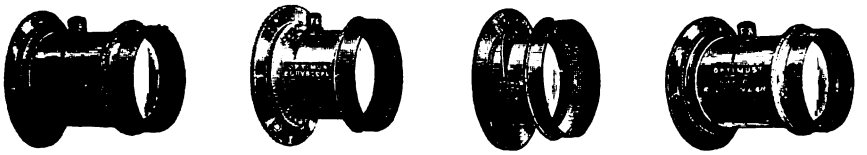
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PERKEN, SON & RAYMENT.

Discounts to the Trade ONLY.

Cameras, Lenses, and Photographic Apparatus.

"OPTIMUS"



"OPTIMUS" EURYSCOPE.

"Working as it does with such a large aperture (f/6 approx.), it serves as a portrait and group lens, as well as a landscape and copying objective. There is no doubt of its proving a most useful lens." — J. TRAILL TAYLOR, *British Journal of Photography.*

"We are pleased to find upon trial that the lens ["Optimus" Rapid Rectilinear] sent for review is really an EXCELLENT INSTRUMENT."—*Photographic News.*

"PORTRAIT LENS.—The 'Optimus' Lenses are MODERATE in PRICE, and yield most excellent results.—*Amateur Photographer.*

"OPTIMUS" RAPID EURYSCOPE.

5 x 4	7 x 5	9 x 7	10 x 8
63|-	94|6	126|-	220|-

"OPTIMUS" RAPID RECTILINEAR.

¼	½	¾	1	1½	2	2½	3	3½
33|-	45|-	49|6	64|-	82|6	127|6	142|6	180|-	225|-

"OPTIMUS" WIDE ANGLE SYMMETRICAL.

½	1	1½	2	2½	3	3½
39|-	52|6	82|6	127|6	142|6	180|-	225|-

"OPTIMUS" QUICK ACTING PORTRAIT.

Diam.....	2 inches.	2¾ inches.	3¼ inches.
Price.....	90|-	120|-	180|-
	1 B	2 B	3 B

99 HATTON GARDEN, LONDON.

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MANUFACTURERS AND IMPORTERS,

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SOLE AGENTS FOR



H. TROMMSDORFF'S CHEMICALS,
J. KAVALIER'S BOHEMIAN GLASS,
C. SCHLEICHER & SHÜLL'S FILTER PAPERS,
E. MARCH'S SÖHNE GERMAN STONE-WARE,

Offer to the Photographic trade, as specialties:

Strictly Chemically Pure Acids.

Strictly Chemically Pure Chemicals.

SUPERIOR

BOHEMIAN GLASS-WARE, FILTER PAPERS, GERMAN PORCELAINS, HEATING APPLIANCES,

GRADUATED WARE, PERFECTLY ACID-PROOF STONE-WARE TROUGHS, BALANCES AND WEIGHTS.

PLATINUM and its Salts.

DIAMOND INK for writing on Glass.

ALL KINDS OF TESTING APPARATUS, REAGENTS AND BOTTLES.

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FOUND AT LAST!

A PERFECT SUBSTITUTE FOR GLASS.

CARBUTT'S

Flexible Negative Films,

For Portraits, Landscapes, Interiors and Instantaneous Views.

WEIGHT ALMOST DISPLACED.

Comparison of Weight.—Two dozen 5 x 8 Films weigh but **7½ Ounces,** while two dozen 5 x 8 Dry Plates weigh **110 Ounces.**

NO EXTRA PROCESSES NECESSARY.

EXPOSE, DEVELOP, FIX, WASH, DRY,

and print from the same as Dry Plates; and being but $\frac{1}{100}$ of an inch in thickness, can be printed from either side.

These Flexible Films are not made on sheet gelatine, or of paper made translucent, but on a transparent material perfectly impervious to water, unbreakable, and with a fine matt surface that renders them especially desirable for Interior Views and Landscapes, as halation is entirely prevented.

They can be used in regular plate-holders for Studio or Landscape work, or in the special film-holders now supplied by the several manufacturers o photographic apparatus.

PRICE OF FLEXIBLE FILMS—PER DOZEN.

Coated with our "Special," "Eclipse" and "B" Landscape Emulsions.

3¼ x 4¼	$0 65	5 x 7	$1 65
4 x 5	95	5½ x 7	1 75
4¼ x 5½	1 12	5 x 8	1 80
4¼ x 6½	1 30	6½ x 8½	2 50
4¾ x 6½	1 40	8 x 10	3 60

Can be sent by mail without fear of breakage. When ordering from your dealer, add 5 per cent. to cost of films to cover postage.

Manufactured by JOHN CARBUTT,

Keystone Dry Plate Works,

WAYNE JUNCTION, PHILADELPHIA.

For Sale by all Dealers.

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ANTHONY'S
Photographic Bulletin.

Prof. CHARLES F. CHANDLER, Ph.D., LL.D., *Editor.*
ARTHUR H. ELLIOTT, Ph.D., F.C.S., *Associate Editor.*

JANUARY 26, 1889. Vol. XX.—No. 2.

MAKING UP FORMULAS.

THERE are many things in photography that are suffering from lack of uniformity. Lens flanges are never made with the same threads for the same size lenses of different makers. American, English and other European dry plates are all made of sizes to suit the whims of some particular set of individuals without any regard to the tourist who has a camera made in one section of the globe and finds himself in need of plates in another. If the makers of other pieces of mechanism were as thoughtless about the wants of their customers as the makers of photographic cameras, lenses and plates, the advances in modern engineering would never have been made. But we think that the greater part of this confusion in things photographic is principally due to the photographers themselves; both the professional and amateur. For what is more bewildering than the hosts of formulas one sees in the photographic journals of to-day, the utterly reckless manner of naming the chemicals for use in them, and the confusion one gets into in trying to make up solutions for developers, baths, etc.

One writer will tell you to use hydroquinone, another hydrochinone, and a third, hydrokinone. With, perhaps, a limited knowledge of chemistry you go to the photographic merchant and ask for hydroquinone. A polite and well-meaning salesman hands you a bottle marked hydrochinone or hydrokinone and assures you it is the material you mean. This is perfectly true; but you have your doubts about it, carry home your purchase, develop a plate with it, and—fail. Now the first thing you do is to blame the salesman, believing he has given you the wrong material, when the real trouble is with yourself, and the wretched doubt produced in your mind by that label which does not correspond to the name given in the formula you wish to use. As a matter of fact, hydroquinone is the English equivalent of the German words hydrochinone or hydrokinone. These latter should never be used in English, and the manufacturers should be more careful about the labels they put upon the bottles.

Again, the writer of a formula tells you to use sulphite of soda. You again proceed to buy the material for use, and the first question you are asked is: Crystals or granulated? Thinking you have not carefully read the formula you hesitate to make the purchase, and return home to find yourself still in doubt, because the author of the formula fails to tell you which he means. The fact of the matter is, that the granulated sulphite is very much stronger in true

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sulphite of soda than the crystals; and very often formulas are given in which, if you use the granulated salt, you would find it impossible to dissolve the quantities specified. As a matter of fact, the crystalized salt contains fifty per cent. of water, while the granulated salt contains none. The same argumen is true of carbonate of soda. In this latter salt we have about sixty-three per cent. of water in the crystals, while the granulated variety contains about fourteen per cent.

In the case of potassium carbonate, we have no such difficulties as those mentioned above as occurring in the case of sodium sulphite and carbonate. The potassium carbonate usually occurs in commerce as a powder, free from water. Occasionally a crystalline variety is seen that contains about eleven per cent. of water; but this salt is not often found for sale.

The true and only way out of this confusion is to use the hydrometer for making up solutions for developers. This has already been adopted by some of our dry plate makers in the printed formulas given in their plate boxes. If you tell a man to take a given number of parts of a solution of a given degree of density on a Beaumé's hydrometer, he is much more likely to get it right than if you tell him to take so many ounces of a salt without specifying the condition of the salt.

Indeed, it has for a long time been a wonder to us that photographers will use a hydrometer to test their silver baths with, and entirely ignore its use in every other solution that they make up. Such an instrument should be their daily companion, and we are certain that it will cause less trouble and give more uniform working in the dark room than any other method that we know. For example: a saturated solution of carbonate of soda stands at 19 degrees Beaumé, and contains about thirty-nine per cent. of the crystals. A saturated solution of hyposulphite of soda stands at 40 degrees Beaumé, and contains about sixty-three per cent. of the crystals. These degrees of density on the Beaumé hydrometer are for the ordinary temperatures, 60 to 70 degrees F.

If the writers of formulas would only state how much of a solution of sodium carbonate or sulphite, of a given density, is to be used, the question of the use of the crystals or granulated salt would never come up, as the density of the solution depends upon that true salt present without regard to the amount of water it contains. Thus, to make a developer, it might be said:

Take—

Sodium carbonate, 10 degrees B	1 part.
Sodium sulphite, 10 degrees B	1 part.
Water	4 parts.
Pyrogallol	x per cent.

By this method the developer could be made up by adding two solutions of definite strength together, and any given quantity of pyrogallol could be added according to the volume of the mixture made up. Furthermore, any desired dilution of the developer could be very accurately stated by mentioning the degree Beaumé which the weaker solution should mark. Saturated solutions of any of the ordinary salts are not to be recommended; but any weaker solution, provided its density is known, could readily be used, and is far more easily made.

We hope we have said enough to induce the writers of formulas to state in more definite terms just what they mean. And if we could all agree upon the

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use of the hydrometer, a much better understanding and far less trouble and failure with dry plates would be assured. We are compelled to believe that much of the trouble between the makers and users of dry plates would be overcome if solutions of definite strengths were recommended, and not a number of salts dissolved in one solution. If the salts are separated, the quantities of each could be much better regulated to suit different circumstances—changes of light, character of view, time of exposure, and many others. Under the present *regime* very little margin is given in most of the formulas, and in a great many all that can be done is to add more or less water.

Can we hope for more definite statements of formulas? With the increasing intelligence in the ranks of photographers we believe we can.

EDITORIAL NOTES.

Our esteemed friend, Professor Dr. H. W. Vogel, in Berlin, recently celebrated his twenty-fifth anniversary as presiding officer of the *Verein zur Forderung der Photographie*, in Berlin; and on this occasion, being an extra festive gathering of all the members of the society and a good many friends and delegates from other societies, he was presented with an address, executed in a fine calligraphic style, encased in a portfolio of excellent workmanship. In this address particular mention was made of his extraordinary and highly meritorious exertions and indefatigable labor in the service of photography, and he was declared unanimously and forever honorary president of the society. We sincerely congratulate our talented correspondent upon the reception of such a marked approval of his labors by those who know him best, and regret that time and space did not permit us to join the many friends that showered upon him the praises he so well deserves.

The Joint Exhibition Committee of the Philadelphia, Boston and New York Societies have announced that the third annual exhibition will be held in the Pennsylvania Academy of Fine Arts at Philadelphia, during the two weeks beginning April 8th next. Circulars, with full particulars, will appear later.

Our good friend, C. D. Kirkland, of Cheyenne, Wyoming, sends us the following formula for a hydroquinone developer:

Hydroquinone	1 ounce	— 0.65 gram.
Sulphite soda (crystals)	8 ounces	— 5.23 grams.
Carbonate potash	16 "	—10.46 "
Water	128 "	—10.00 c.c.

With the above developer he has done some excellent work in instantaneous photography, as well as in transparencies and bromide paper.

The annual election of the officers of the Lynn Camera Club was held at its meeting of January 1, 1889. The officers for the year 1889 are as follows:

President.....W. H. Drew.
Vice-President.....J. E. Randall.
Secretary.....J. W. Gibboney.
Treasurer.....E. F. Bacheller.
Librarian.....E. L. Rogers.
Executive Committee for two years.....W. H. Russell.

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A LEGAL decision in England involving the ownership of the negative, is of interest to every American photographer. A lady sat for her photograph to a certain company, and she afterward learned that the company were using the negative to make pictures for sale. She applied to the Courts for an injunction, which was granted, the judge giving the following reasons: "The object for which a photographer is employed and paid is to supply his customer with the required number of printed photographs of a given subject. For this purpose the negative is taken by the photographer on glass, and from this negative copies can be printed in much larger numbers than are generally required by the customer.

"The customer who sits for the negative thus puts the power of reproducing the object in the hands of the photographer, and in my opinion the photographer who uses the negative to produce other copies for his own use without authority is abusing the power confidentially placed in his hands merely for the purpose of supplying the customer.

"And further, I hold that the bargain between the customer and the photographer includes, by implication, an agreement that the prints taken from the negative are to be appropriated to the use of the customer only."

PROFESSOR CHARLES F. HIMES, the Acting President of Dickinson College, Carlisle, Penn., will lecture at the Franklin Institute in Philadelphia, on February 11th next, the subject being "Amateur Photography." We need not say that the subject will be well handled, Professor Himes being one of the earliest and most enthusiastic workers in amateur photography. Those who are located conveniently should hear this lecture.

THE Lowell Association of Amateur Photographers have reorganized under the name Lowell Camera Club, with the following officers: W. P. Atwood, *President;* Charles J. Glidden, *Vice-President;* George A. Nelson, *Secretary;* H. W. Barnes, *Treasurer.*

THROUGH the kindness of Mr. John Carbutt, the well-known dry plate maker, we have received a number of prints from negatives of interiors made on his new flexible films. They were made in the American Institute Hall, in New York, and are as fine as anything we have ever seen made upon glass negatives; with this important advantage, that they are practically free from halation.

THE following notice of our good friend Dr. Wilson appears in the "*Photographisher Almanach* for 1889," published by Liesegange, of Dusseldorf:

"To the readers of photographic works and journals, the name 'Wilson' is not unknown; the owner of this name has belonged, for the last quarter of a century, to the 'photographic general staff,' and our art owes to him many an advancement which has been made in that time. Especially does the ideal side of photography possess in him one of its most zealous and worthy representatives.

"The *Philadelphia Photographer,* founded in the year 1864, has been uninterruptedly edited by Wilson since that time, and always with great success; the magazine belongs undisputably to the foremost and most excellent of our art. The twenty-five thick yearly sets, standing upon the book-shelf, present an im-

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posing spectacle. What diligence, what knowledge, what instruction is here stored up!

"Moreover, Wilson has written two instructive books on photography, which find large sale in America, and in consequence of this, call for frequent new editions. They bear eloquent testimony to the talent of the author. Also 'Photographic Mosaics,' which have been published since 1866 by Wilson—at first in conjunction with our friend, M. Carey-Lea—and which in form and contents resemble our almanach, are eagerly bought by the American photographers and amateurs. Wilson is at the same time his own publisher; up to the year 1876 he conducted the business in connection with his partner, Benerman, after which it passed into his (Wilson's) own possession.

"In the year 1869 we find Wilson a member of the expedition for the photographic observation of the solar eclipse, under the direction of Professor Morton, which took place at Iowa. In the year 1882 we find him again on a great oriental journey, from which he brought back rich and highly interesting material for lectures and projection representations.

"In acknowledgement of his service in investigation on the Orient, he was awarded, in the year 1884, by the Washington and Jefferson College (Pennsylvania), the degree of Doctor of Philosophy. In the year 1886 Wilson changed his residence from Philadelphia to New York. May he for many years yet work successfully among the best of the photographic savants!"

LETTER FROM GERMANY.

BY DR. H. W. VOGEL.

A Quick Printing Process—Results with the New Optical Glass from Jena—Concentrated Hydroquinone Developer—Influence of the Developer on the Color of Prints—Caustic Potash in the Developer.

Many times I have heard professional photographers ask the question: "What can I do to furnish in two days 1,000 prints from one negative?" If I reply: Take bromide of silver paper—the answer will certainly be: "That gives black pictures, but I want them brown like regular photographs." Well, this could be very easily accomplished with the aid of Lichtdruck (cottotype). But good cottotypes are not to be had everywhere. We have now a process admitting very well the solution of the problem, and which can be executed by every skilful photographer. It is nothing more or less but the use of chloride of silver gelatine paper. This paper has been known for years, but has met with less favor than it deserves. By way of a test I gave director Helff, in Judenburg, an order to develop 1,000 copies upon chloride of silver gelatine paper.

Mr. Helff writes: "The copies you sent me were printed in the hand copying apparatus (Patent Schlotterhaus) on roll paper, in diffused daylight, seven seconds. Total, time two and one-half hours."

The rolls were cut in strips of four pictures each; duration two hours; they were then developed with oxalate of potassium, 3; sulphate of iron, 1 (saturated solutions); diluted with some quantity of water, and with moderate addition of bromide of potassium.

The developer keeps from fourteen days to one month. Four strips of four pictures each were worked at one time. Time, three minutes; therefore total duration of development for one hundred pictures, about four hours. After this they were well washed and fixed two minutes in lots of forty; therefore altogether,

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one hour. After this they were washed for two hours in repeated changes of water.

The toning was done with twenty copies at a time in the sulphocyanide gold bath. It was finished in about four hours. After this the pictures were washed for one minute and put into the alum bath, together about one hour. This was followed finally by washing, squeegeeing upon glass with a rubber roller, and drying by artificial heat (two hours). During the summer season this is done best in the open air in sunshine.

The squeegeeing requires about four hours for 1,000 copies. This time is calculated for one person; with extra help the time can be reduced to one-half.

The tone is according to one's pleasure, but it is difficult to obtain perfect equality in large quantities, because the intensity of daylight changes during printing. This is no hindrance for practical purposes.

The pictures are trimmed with the glass pattern. The mounting requires practice and care. Glue is spread in the middle of the card-board (very little, to prevent it from running out on the sides), and the picture is placed on a large glass plate and glued on the edges; but great care has to be taken that the glue does not touch the picture side. In mounting, the glued parts of picture and card-board will meet.

Each picture is laid upon a fresh part of the glass plate, and when this is full another one is taken; the first one used can be cleaned and dried in the meantime. With a little practice and working in concert, 150 pictures can be mounted in an hour by two persons, without injuring the glass in the least. The material used for pasting has to be a pretty thin glue. The pressing on to the card-board has to be done with a rubber roller. After drying, the picture is burnished (cold). Retouching is done from color with gum arabic.

Since the establishment of the new factory of optical glass of Schott & Co., in Jena, a change is coming in practical optics; therefore, also in the production of photographic objectives. Until now all opticians of the world were obliged to procure their glass from Paris and Manchester. Unfortunately, these were not always uniform, and the lens calculations made for one lot would not always agree with those for the next shipment. This has ceased now. The glass factory in Jena is under a scientific management, and one fusion is exactly like the other. The opticians do not require any more to remodel their polishing trays for each new shipment, and the glass furnished is of such uniform proportions, not thought of as attainable in former times.

Our first-class opticians, Voigtlander, in Bromswig, and Steinheil, in Munich, are occupied with testing the new glass, assisted by two scientists of the Imperial Physical Institute, Dr. Lummer and Dr. Kaempfer. The first result of their activity I obtained recently from Voigtlander, in the shape of two euryscopes of exactly the same focal distance. The difference was surprising. With full opening the one will cover a visual field of 15 cm., completely sharp, whereas the other will cover only 11 cm. This is of great importance for portraits and instantaneous views. The luminous circle of the new objectives was also about 4 cm. larger than that of the old ones. This is of great significance for the production of wide angle lenses.

The results obtained characterize sufficiently the progress which has been made with the new glass of Jena.

The movement in favor of the hydroquinone developer proceeds quietly.

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My son made the observation recently, how, with different mixtures of hydroquinone, with carbonate of potassium or sodium, the color of the paper pictures (bromide of silver paper) made with the same can be considerably influenced. This color depends upon the quantity and the kind of the salt added. If the developer is made according to the following formula :

Sulphite of soda (crystals)	40 grams.
Hydroquinone	5 "
Carbonate soda (crystals)	50–150 "
Water	900 c.c.

Green pictures will always be obtained up to 75 grams corbonate of soda. At a larger soda proportion the tone will gradually improve to black or brownish-black.

With 75 grams of carbonate of soda and correct exposures good results can be obtained, but not with over-exposure.

Carbonate of potassium has the great advantage over soda, that the pictures will never have a green tone, and it is therefore decidedly to be preferred for the development of paper pictures.

My son composes the developer as follows :

Sulphite of soda (crystals)	40 grams.
Hydroquinone	5 "
Water	150 cc.

After everything has dissolved (if necessary, by putting the bottle in hot water) 50 to 54 grams of carbonate of potassium are added. A larger quantity of carbonate of potassium will easily cause strong formation of bubbles during development, particularly in hot weather. For use 5 c.c. are diluted with water to 30 c.c.

This concentrated developer keeps a very long time (in diluted condition only two to three weeks) and can be recommended particularly for traveling. In the development of gelatine plates I obtained with the same also very good results; it might also be recommended for instantaneous views, producing a great many details and causing a very rapid development.

For the negative process I prefer in most cases the soda developer. On account of its greater durability it can also be kept in the following concentrated form:

Sulphite of soda (crystals)	40 grams.
Hydroquinone	5 "
Carbonate soda (crystals)	75 "
Water	200 c.c.

For use, dilute 10 c.c. with water to 35 c.c.

Both developers can be graded according to the character of the plates to be developed or the desired result; for too hard working plates less water is used for the developer and more water for soft working plates.

The price of the hydroquinone developer might prove to be considerably cheaper in the form mentioned (even if used for one development only) than that of the pyrogallic developer.

Several authors recommend an addition of caustic potassium or caustic soda. I do not feel much inspired about it. True enough, it accelerates development, but it causes slippery hands and easily gives cause to frilling, particularly in the summer. I remark, besides, that the development with carbonate of potassium and correctly exposed plates has a duration of only two to three minutes.

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ENGLISH NOTES.

One by one the pioneers of photography are dropping away from us. The death of Edward Anthony came as a surprise and a shock to many in England, who either loved him as a personal friend, or who respected him as a man who had done much for photography, and as the head of a firm whose name is known wherever photography is practiced.

I was greatly pleased to hear of the action of a section of American photographers, who, a short time back, commemorated the services of H. T. Anthony by causing a bronze tablet to his memory to be placed where many would see it; but this solitary fact only causes me to think that both in England and America we have been somewhat neglectful of the "mighty men of old." France has honored Niepcé with a statue and Daguerre with a bust; but our Talbot and Herschel, and your Draper and Morse—not to mention other great workers—still wait for a proper recognition of what they did when they laid the foundations of photography. Is there not work here for our conventions, our societies and our clubs?

But to turn to more practical topics. Among developers hydroquinone is again coming strongly to the front, and my own recent trials of it have shown that when combined with hydrate of sodium (caustic soda) it is an exceedingly powerful and clear developer, working well with either paper or plates. The formula I prefer is as follows:

A.

Sodium hydrate	8 grains.
Water	1 ounce.

The sodium hydrate is sold in small white sticks; it dissolves very readily in water.

B.

Hydroquinone	8 grains.
Sulphite of soda	40 "
Citrate acid	2 "
Water	1 ounce.

C.

A ten per cent. solution of potassium bromide.

Use equal parts of A and B, and add to each ounce of the mixture 5 drops of C.

All these solutions keep well, so that a pint or more of each may be prepared at once. The mixed developer will serve for many plates, in fact until quite used up, if it be strengthened occasionally with more of the original solutions. After developing several plates I have kept the mixture till the next morning, and found it even then almost colorless and quite active. A great complaint against hydroquinone has been its slowness; but the caustic soda quickens it remarkably.

In cold weather, or for instantaneous work, the potassium bromide may be omitted.

It is a great advantage, however, to keep the solution used in development as near as possible to the temperature of 60 degrees F. This can be done by using ice in summer and hot water in winter. If distilled water be also used,

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as it always should be, in making up the developer, the whole thing becomes as uniform and easy as possible.

For those who have artistic tastes and powers I can recommend a capital plan for using up dry plates which have been spoiled by accidental exposure to daylight; or any ordinary plate may be used with or without a short exposure to white light and immersion for a few minutes in a weak developer, followed, of course, by washing and drying, but omitting the fixing in hypo. Get an etching needle or manufacture a substitute by firmly binding a stout needle to a pen-holder and proceed to draw upon the surface of the film, using the needle-like pencil, but causing the point at each stroke to cut right through the film. The point of the needle must be ground flat, so as to act like a cutting and not a scraping point. A sharp blade of a penknife, or better, a surgeon's lancet or scalpel answers extremely well. If desired, the dry plate (a thinly coated one should be chosen) may be used like one of the ground glass "drawing slates" we see in the toy-shops, being laid upon the design which it is desired to copy and the lines cut through the film with the needle-point. So far as I remember, I first saw this method in print in a little book published by Strudwick in 1858, but this Christmas an artist-friend of mine has produced some excellent effects in this way. His drawings have all the effect of a fine etching. Of course any number of copies can be obtained by simply using the "etched plate" as a negative and printing from it in the ordinary way. If you have some power with the pencil try this method; print on bromide paper and your friends will find it diffiult to guess how the results have been obtained until you "explain." The process has no name that I know of, and I don't find it easy to think of a good one. Perhaps "Etchotype" might answer.

The introduction of the new "flexible film," or celluloid dry plate, reminds me of an attempt to introduce what was practically the same substance twenty years ago. In the *British Journal of Photography* for 1869 (see page 155) we are told that the name "Parkesine" is applied to a remarkable substance discovered by Mr. Alexander Parkes some two or three years ago. The mode of preparation is exceedingly simple. Ordinary pyroxyline is dissolved either in a mixture of ether and alcohol, nitro-benzole, or some other suitable solvent. With this solution Mr. Parkes combines castor or cotton-seed oil. The combination of the oil and the pyroxyline on evaporation gives rise to a substance which is as hard and flexible as ivory, and is stated to be neither softened by heat nor hardened by cold. It can be obtained perfectly transparent, and can be easily rolled into large plates; hence it would seem to be a peculiarly suitable substance for employment as a substitute for glass. The Parkesine plate might be substituted for the ordinary glass plate, and the former then coated with collodion, sensitized in the nitrate bath, and the positive printed, developed, fixed and dried just as in the ordinary process.

In the search for transparent substances as substitutes for glass, it seems curious that the claims of celluloid should have so long been forgotten. Possibly difficulties of manufacture intervened. All honor to Mr. Carbutt that he has achieved what, from all I hear, is a decided success. The trouble involved is the use of "stripping films," and the risks of damaging them are so great that I, for one, always print from such films "unstripped;" but a new transparent, non-brittle substitute for glass, which requires no special manipulation, is welcomed by

TALBOT ARCHER.

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COLLODIO-BROMIDE EMULSIONS.

BY F. C. BEACH.

[Read before the Society of Amateur Photographers of New York.]

(*Continued.*)

My experience with the carbonate of ammonia developer was rather unsatisfactory. I mixed the solution according to Mr. Brooks' directions; it had a strong odor of ammonia, which I presumed was the alkali intended to bring out the picture, but somehow it failed, and it was only by great patience and perseverance that I succeeded at all. Mixing it as directed and pouring on and off the plate, it took at least five minutes before the faint show of an image appeared, and by constantly working over the plate I managed to secure a slide in about twenty minutes, somewhat over-dense in the shadows, which I regarded was due to too slow development.

I mixed up a half an ounce of dried carbonate of soda, not the ordinary crystals, in 10 ounces of water, and applied two or three drops to the same developer, when used on another plate, and to my gratification the image appeared rapidly, and acquired the requisite density and brilliancy in the time I thought it ought to. Remembering that I used to employ the soda on Mr. Newton's plates long ago, and meeting Dr. Higgins, who also advised it, I have ascertained that it is much better than ammonia, and puts the relation of exposure to developer on a solid basis. We have no fickle alkali like ammonia, but a certain fixed alkali which may be relied upon to act as you expect it should, every time. Mr. Newton advises using the pyro dry; I obtain just the same results in slide making by using it preserved in solution with sulphurous acid and sulphite of soda. It prevents the developer from getting muddy, which it is otherwise sure to do if you are compelled to prolong the development. I believe the only person suggesting the use of hydroquinone on these plates is Captain Abney, in his work on "Photography with Emulsions." I have tried it, and think if anything it works quicker than pyro, and produces equally as good results.

Therefore, for Brooks' emulsion, I can recommend the following developers:

STOCK SOLUTION NO. 1.

Carbonate sodium (dried)	230 grains.
Sodium acetate	120 "
Potassium bromide	120 "
Water	10 ounces.

No. 2.

Sulphurous acid and sulphite soda, pyro solution, after my formula based on the strength of 48 grains of pyro to the ounce, or any other pyro solution based on the same strength.

To develop a slightly over-exposed plate, add 20 minims of the pyro No. 2 solution (and the same amount also of No. 1), then fill the graduate with water until the whole measures half an ounce.

You thus have a dilute developer to begin with. The image will appear in a few seconds (probably ten) after the developer is applied, and will be finished in about a minute, or perhaps three. Then the image is examined by transmitted light, and when the desired density is reached the developer is poured off and the plate washed under a gentle stream of water for a few seconds, just enough to clear it of the developer. If the water runs too strong, it is apt to split the film and carry it off the plate.

Then comes the fixing in less than half a minute with the cyanide, which is most rapid, leaving the high lights beautifully clear, and the dense portions exactly as you saw them before fixing. The cyanide is quickly washed out under the tap or by soaking the plate in water. In a few minutes the plate may be dried by heat over a lamp or near a stove, then varnished, and it is ready to mount. Here, there are two important advantages over gelatine, the non-over-fixing out of the dark portions and the rapid drying. If the developer works slow and the image appears to be slightly under-exposed, simply add a few drops at a time, at short intervals, of the No. 1 solution, until the details appear sufficiently out.

I rather prefer the hydroquinone to the pyro, because it keeps better, and you

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can use the same developer over again. It appears to give the plate equally as good a color as pyro.

I mix a solution as follows:

Hydroquinone, chemically pure	15 grains.
Sodium sulphite, chemically pure	40 "
Distilled water	1 ounce.

Put 1½ drams of the above into the graduate, add 20 minims of the No. 1 or soda solution, and fill with water until it measures 4 drams, then apply to the plate.

This process is especially useful in making slides from negatives having thin skies; and when it is found that sky of a slide is veiled or fogged, it may be readily removed by the use of an alcoholic solution of iodine.

Mr. Brooks states that the solution should be prepared as follows:

Iodine	20 grains.
Alcohol	1 ounce.

Drop a few drops of the above into an ounce of water; if the solution should appear cloudy a little more water added will clear it; pour on and off the plate from a developing measure for a minute or so, and if one place seems more fogged than another, pour on and off that part; the high lights will assume an opalescent appearance. When this has taken place, wash well under the tap, and again pour over the cyanide solution. The image will then clear up and the fog will be removed from the high lights. This manipulation can be repeated until the desired effect is obtained.

If properly exposed and developed the slide should have a brown tone by transmitted light. Mr. Dunsterville gives the following for toning and strengthening, which I have not had time to try:

To tone the transparency take—

Platinum tetra-chloride	1 grain.
Nitric acid	1 minim.
Water	4 ounces.

And immerse the plate. Watch carefully, as the toning proceeds very rapidly. As soon as the wished-for color is produced, take the plate out at once and wash well and quickly. Should the toning have gone too far, the warm color may be restored by flowing again over the plate the alkaline developing solution and the toning done over again more carefully. Should the picture appear too thin after toning, it may easily be intensified to any degree by the following solution:

Pyrogallic acid	30 grains.
Citric acid	30 "
Alum	30 "
Distilled water	15 ounces.

To each dram of this add two or three drops of a 20-grain solution of silver nitrate.

Should the picture appear too dense after toning, it may be reduced by flowing again over it the cyanide-fixing solution.

I may remark further that these plates can be developed with a weak ferrous oxalate developer, restrained with bromide of potassium, as easily as gelatine plates. I have been thus explicit as regards details in order that any amateur wishing to make these beautiful pictures may have a practical guide that is reliable, and I trust some of our members will try working the process.

It is well known that the perfection of the collodio-bromide process in this country was largely due to the exhaustive experiments carried on by Mr. Henry J. Newton, and I have deemed it but just to him and all American workers to include in this paper his formula for an unwashed collodio-bromide emulsion, as now given to me by Mr. O. G. Mason, of Bellevue Hospital, whom as some of you may know, is still using Mr. Newton's formula. The collodion is prepared as follows:

Alcohol Ether	Equal quantities.

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Pyroxyline (gun-cotton) 6 grains to each ounce of alcohol and ether used, compounded as follows :

Put the alcohol in a bottle of sufficient capacity, then add to each ounce 16 grains of bromide of cadmium; then add to each ounce 12 grains pyroxyline and lastly add as much pure concentrated sulphuric ether as alcohol used. Let the collodion thus made stand several days to ripen and settle.

To silver the emulsion, prepare for each ounce 12½ grains nitrate of silver crystals by pulverizing in a mortar, put it in a flask or bottle, and add for each 2 grains of silver, one drop of water, and apply gentle heat, preferably over a water bath, until dissolved.

Then add to this dissolved silver, four drops nitric acid for each ounce of emulsion to be made, and while the mixture is yet warm, not over 100 degrees F., add to it the proper amount of bromized collodion, as previously given. Let the whole stand six hours, then add to each ounce of bromized and silvered emulsion 1 grain of tannic acid.

At the expiration of six hours (for clear, brilliant work, or twelve to eighteen hours for a more sensitive plate), after adding the tannic acid, add for each ounce of emulsion 3 grains of finely pulverized chloride of calcium, and shake the mixture until the calcium is dissolved.

The emulsion improves by age and frequent shaking. He says nothing about the developer, but I presume he employs the soda and pyro developer always recommended by Mr. Newton.

(*To be continued.*)

THE LIGHTING IN PHOTOGRAPHIC STUDIOS.

BY P. C. DUCHOCHOIS.

(*Continued.*)

X.

Le regard est un reflet de l'âme; it expresses all our sensations, joy, sorrow, love or hatred. Rembrandt and Vandyke, Corregio and Titian, Reynolds and Gainsborough, all the artists as a rule direct it to the observer; the photographers as a rule turn it off, and thus deprive themselves of the most effective means to give character, life, expression to their models. Do you want an example amongst thousands? Look at the portrait of Mona Lisa—*la Jaconde*—by Leonardo de Vinci.

How simple and *reposé* is the attitude, but how graceful and noble also! The body slightly turned, the head almost full face, a drapery thrown on the shoulder, one arm and the hands resting on the arm-chair, and that is all. But that indefinable smile, her facinating regard, full of promises, impress you with an enamored and trembling emotion, which can never be forgotten. Turn her eyes off and the charm which attracts you to the enchantress, as the magnet attracts the steel, is destroyed. This portrait has been engraved by good artists, and everyone has failed to render the expression of the beautiful Lisa; in fact it is impossible.

I know well that to direct the eyes to the observer—the lens in photography—is not always possible, for if we study the features of our model we observe that very often they are not symetrical; one eye is larger, the mouth slightly crooked, the nose not straight, etc. Hence the necessity to pose the sitter in the most advantageous manner to conceal these imperfections. But whenever it is possible, one should select an attitude so as to permit of directing the eyes to the lens without straining them much in the corners.

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The old photographers strictly followed this rule; there was consequently little difference in the direction of the head and body. This manner has been much criticised, but it was not the pose which was at fault, for this attitude imparts nobleness and grandeur to the picture, and is quite appropriate to the composition of a portrait, as seen in the works or Titian, Velasquez, Caracci and other masters. The fault was in the arrangement of the drapery and accessories, and in the lighting, of which they seem to have had no notion at all. "The three-quarters view of the head," says Burnet, "gives to the artist an opportunity of representing both sides, independent of which advantage it has a great variety of forms, and gives an opportunity for introducing breadth of light and shade." On the same subject the author of "Pictorial Effect in Photography" remarks: "However graceful a figure may appear, which has cost some effort to the sitter to attain, it does not compensate for the unaffected air and repose derived from the head and body placed in one direction."

We have said that the eyes should be lighted by one light only; moreover it is a strict rule for the illumination of the whole figure, and therefore that there should be but one luminous spot or reflect.

This reflect, necessary to give life to the eyes, should be placed on the upper part, on the side of the source of light, nowhere else, and visible and equal in both eyes. Therefore the head of the model should be turned to the light just enough to produce that effect.*

In this position the head is quite well lighted, showing the classic illumination on the arc of the nose. The camera may be then placed to take whichever view is the most advantageous to the features of the face. Many artists follow this simple rule to place the model in the light, altering afterwards the illumination to produce relief by contrasts of light and dark.

All reflection from the walls,† the floor, curtains, which projects an actinic light in the eyes—not always apparent when viewing the model, but which will print white on the positive proof—should be avoided. If this rule be observed, as well as not to have any bare glass in front of the model, blue eyes can be photographed as well as dark ones; moreover the pupils will then have no tendency to contract.

To direct the regard, the sitter should look at some object, placed in the obscured part of the studio, so much the larger as it is farther off; at a distance of 14 feet it may be about 10 inches square.

If the regard be direct in the lens, the camera should be placed under a canopy projecting 15 to 18 inches outside. This arrangement, or any similar one, is also useful to shelter the lens from extraneous or reflected light in order to obtain clear negatives.

Lastly, the sitter should be instructed not to look steadily at a peculiar spot, but anywhere in that object, and to blink the eyes naturally during the time of exposure.

In all the examples of lighting given in the preceding pages, the reader must have observed that the light from above illuminates the model all over, casting deep shadows under the eyebrows, etc., whilst the side light softens these shadows, relieves the lights by stronger lights, and breaks the evenness of the lighting by

* A revolving platform is most convenient to poise the sitter in the light without it being troubled to move at all.

† They may be painted dead light brown or of a dark neutral color.

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casting a shadow on the side of the model opposite to its direction. As a rule, the light from above should dominate.

In concluding, I will repeat what I have said often in the course of this essay: Study, again, always, not only the art of lighting—lights and shades are the colors of the photographer—but also the art of posing, both arts being dependent on each other.

"By studying the great masters of *chiaro-oscuro*," says Opie, "you will by degrees become acquainted with all the artifices of contrasting light and shade to produce *relievo*; and joining light objects together and black objects together in massive order to give splendor and breadth of effect; of gradually sinking some effects wholly or partly in shadow and losing their outlines in the ground, to produce softness and harmony; and of making in other places abrupt transitions to produce vivacity and spirit." These studies will equally teach you where to strengthen the lights and soften the shadows intelligently by retouching the negative without altering the anatomy of the head,* and how to improve and give vigor to the picture by light and dark formed by printing dodges.

Before studying by seeing the masters' works you should, however, learn the first principles, else you will surely be misled and your artistic education will be based on false judgments. Everyone should be well read in artistic literature if he wishes to become an artist or a critic deserving that name.

Every day you should spare time to experiment on lighting. All educated artists who practice the art of photography—for photography is an art, as you well understand now—never cease to study the lighting in the glass room, which presents more difficulties than it seems at first sight. The late Adam Salomon, who was a sculptor of talent and a photographer that very few have equalled, had "two life-sized figures dressed in black and trousers for his essays; and since he had here the contrasts of black drapery and white features, which is the plague of the photographer, he knew pretty well that if he could succeed with these he could succeed with live models."

The most terrible foe of the photographer is human vanity. Everyone is quite satisfied that "he is well in any pose and by any light," and forgets that the "brutality of the lens exceeds that of the most truthful mirror." But we have a sure remedy for that impoliteness, and "that remedy is lighting."

I do not mention retouching, by which one can resuscitate a man of eighty springs into a dude, because no photographer will compromise his dignity by resorting to such a meanness for the sake of money. Our portraits are true likenesses; we retouch slight imperfections, but never—*hardly ever*—to such an extent as to alter the features of the model, its age and characteristics.

Be careful to produce softer effects of light and shade on the sitter when working with short focus lenses, which more brilliantly illuminate the image by concentrating the light, and therefore produce more contrast than is seen in the studio.

Observe the inverse rule in using long focus lenses or diaphragms to better the definitions. Sharpness in this case is obtained at the expense of the illumination, the light being diffused at the focus of the lens.

Do not neglect, therefore, to study your optical apparatus nor your photochemical processes, the development specially.

* The anatomy of the head is best studied on a plaster cast, showing on one side the face as it appears in life and on the other the bare bones and muscles.

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In the collodion wet process, the development proper has very little or no influence on the final result, the exposure being the only factor, although it is possible to diminish or increase the contrast by well-known means, but this is obtained by sacrificing some of the delicate details in the half lights and shadows.

Since the discovery of the gelatine process, that part of the photographic operation—*i. e.*, the development—being quite under control, has acquired a real importance; "it is an art by itself" and you may entirely spoil the lighting effects if you do not know how to regulate it. Indeed, the development of gelatine plates is a matter of very interesting and serious study. One can produce vigor or softness by its sole agency. However, it is advisable to rely entirely on the lighting in order to obtain brilliant effects and details in the shadows.

In your practice do not confine yourself to play the part of a copyist. By select reading, the study of nature and *seeing* masters' works, which latter is a *condilio sine qua non*, you can acquire a taste of your own, a real original talent. There are assistants in Paris, as good artists as they are good photographers, who receive for their services as much as one thousand francs ($200) per month, and that is very high wages in France. If you have not the *feu sacré*, do not be discouraged; study, experiment, for you will at last, guided by your artistic education, make pictures which will place you in a high rank amongst photographers.

(*To be Continued.*)

INFORMAL EXHIBITION OF PRINTS AT SOCIETY OF AMATEUR PHOTOGRAPHERS.

NOVEMBER 30 TO DECEMBER 19, 1888.

A VERY successful and interesting exhibition of prints, representing mostly the work of members of the Society, was held for nearly three weeks at the rooms, from November 30 to December 19, 1888, inclusive.

It had been gotten up on short notice, yet included quite a number of exhibitors, and covered all of the available wall space in both the main hall and library, numbering, it is estimated, five hundred and ninety different pictures, distributed among some forty exhibitors.

Commencing with the exhibits on the walls of the library, were nine 5 x 8 unframed landscapes, by Mr. J. B. Manning; he had also some very good portraits of a few young girls grouped in an ordinary room. Excellent work by Mr. C. C. Roumage, Jr., was shown in his 5 x 8 landscapes, of which there were eight.

Dr. J. T. Nagle had an extensive exhibit, covering forty-three pictures (thirty 4 x 5, thirteen 5 x 8). Those most striking embraced admirable cloud effects, marine views, boats in surf, excellent animal studies, his peculiar "Fish-hawk Nest Pictures," and quite a good interior of the New York Morgue.

The work of Mr. J. E. Plimpton included fifty 4¼ x 6½ photographs, illustrating a variety of interesting views of English scenery. One that was particularly artistic was of an old-fashioned wind-mill. All his work showed excellent taste and was much admired.

At the east end of the library was a fine collection of photographs, contributed by members of the "Historical Section," and included the work of Messrs. Leaming, Duffield, Howell, Lawrence, Simpson, Benson, Plimpton and Newton. Among the views of interest were exteriors of the "Courtland Manor House,

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built 1867," which at one time was used as a fort, and the interior of the haunted chamber and the dining-room with the loop-holes out of which muskets were fired at the Indians.

There was also a picture of "Washington's Headquarters," now located at the foot of Broad street, which he occupied at the time he took leave of the Continental Army.

Others were of the old University Building at Washington Square, by Mr. H. J. Newton; the "Jumel Mansion," formerly the residence of Aaron Burr; "The Rhinelander Sugar House," used as a prison during the Revolution; Old Stryker Mansion; "Apthorp Mansion," used as headquarters by the British general during the battle of Harlem Heights; "Hamilton Grange," built in 1792 by Gen. Alex. Hamilton, showing the thirteen gum trees planted by him to represent the thirteen States of the Union; "The Century House," built in 1736; also views of "Black Horse Tavern" and "Old Dutch Church" at Sleepy Hollow, New York. The collection represented historical subjects in and around New York.

On a separate screen at this end of the room were nineteen 4 x 5 excellent sepia platinotype views, illustrative of Norwegian scenery, made by Mr. Richard H. Lawrence last summer. The quality of the work was admirable and attracted considerable attention. He had five other larger platinotype pictures in frames, that were beautiful specimens of this process; that called "Canal in Lorches, France," was especially commended by the committee, also a view on the Saw Mill River, New York.

Beginning at the northeast corner of the main hall were hung thirteen frames, of 8 x 10 bromides of yachts and views of "Old Line-of-Battle Ships," by Arthur H. Clark, a member of the London Camera Club, loaned by Mr. M. Roosevelt Schuyler. They were beautifully done, well taken, finely located on the plate, and neatly mounted. His 17 x 20 enlargement of a yacht coming bow on in a stiff breeze, was particularly artistic and striking.

Mr. Schuyler had a finely lighted and well-posed theatrical group, entitled "Solomon and Miss Gerrish in 'The Yoeman of the Guard.'" There were also three other frames of interesting subjects.

Mr. H. J. Newton's five frames, embracing twenty 6½ x 8½ photographs, presented a very attractive exhibit. His Central Park sheep views were admirably done. The committee selected a picture of some cows grazing in an orchard as being one of his best.

An interesting feature of the exhibition was the work of the ladies. Mrs. David Williams had five pictures (4¼ x 6½) framed, and two unframed, those most admired being an enlargement of a "Dog's Head," and a girl dressed in white standing alongside shrubbery with the sunlight streaming through, partly striking the dress; the whole effect was very pleasing. Mrs. Nathan Appleton exhibited a frame of thirteen 4¼ x 6½ attractive views in Switzerland, and had besides eleven others on the other side of the room, not framed, which included some excellent animal and portrait studies. The portrait of "Miss Emma Thursby" was especially good, while the "Angola Cat" photograph was particularly liked by the committee. Mrs. Arnold's work was very much admired, and included very pretty 8 x 10 road scenes, one especially interesting, showing sunlight effects, was entitled "Pollard Willows, Stockbridge, Mass." She also had two 4 x 5 views of Florida palm and Spanish moss trees that were quite

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striking. Miss Catharine W. Barnes exhibited nine 8 x 10's, mostly of interiors of drawing-rooms, libraries and halls; they were most excellently done, and sustained her well-known reputation for careful and artistic work. She also had a portrait of a lady in wedding costume, admirably lighted and posed. She has kindly donated these pictures to the Society.

The Society never had before such a large exhibit of ladies' work, and it is very encouraging to note the taste and ability displayed in their exhibits; their enthusiasm for photography appears to be greater in proportion than that of other members.

Mr. David Williams had a notable exhibit, twenty-four framed 6½ x 8½, and two unframed. Among those that were particularly striking was a "View on Lake George," a very clear view of an "Old House" along a roadside, a tree covered with snow (a very interesting picture), also views showing snow effects and results of last spring's blizzard; one that was specially good was that looking down Madison avenue just after the March blizzard.

A frame of four 5 x 7 views by Mr. Z. T. Benson, illustrating Eatontown Ford, Eatontown, N. J., including a very artistic road scene (which appears to be Mr. Benson's specialty), and was made effective by the natural position of boys sitting on the fence in the foreground. Mr. Chas. Simpson had a frame entitled "Contrasts," showing residences of the rich and poor citizens of New York City. One 5 x 8 view of a "Mountain Cascade," was quite pretty, while his "Old Sam, a Norfolk Darkey," and "Girls Watching the Waves," were excellent character studies.

A series of ten 5 x 8 views, by Mr. J. Wells Champney, along Green River, Mass., were very well done.

Mr. John E. Dumont contributed a particularly good 14 x 17 bromide enlargement, a figure study, called "The Fisheries Question."

Mr. F. C. Beach had five 8 x 10 photographs, three of which were the interiors of the rooms of the Society and which he presented. One of the interiors of the Society's dark room was especially admired by the committee. His others were portrait and landscape studies of fair merit. He showed three 4 x 5 prints on Pizzighelli's new printing-out platinotype paper.

The admirable exhibit of landscapes, embracing twenty 5 x 7 views in one large frame, by Mr. Grisdale, was especially liked. That called "Putnam Valley, N. Y.," was particularly striking, and was marked by the committee as being one of the best. His views around Dingman's Ferry, Pa., were beautiful in their combination of landscape and water effects.

Mr. Edward Leaming, to whose excellent judgment the hanging and arrangement of the photographs is due, showed three 5 x 8 marine views; that of an old wreck in mid-ocean, called "On the Steamers' Track," was considered the best.

Adjoining his exhibit was that of Mr. Ferdinand Ruppert, which included nineteen remarkably clear and beautiful 6½ x 8½ views, mostly taken in Germany. He had a very good magnesium light group also, but his "Old Fortification at Wuerzburg" was especially fine. The brilliancy and snap shown in his pictures indicate that he uses excellent judgment both in timing and in development.

Mr. Ralph McNeil had ten 6½ x 8½ pictures, some of his interiors being very well done, while his view of the Steamship "City of New York," was of especial merit and technical excellence.

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Of Mr. J. B. Colton's eleven 6½ x 8½ views, that of an "Old Mill" was the best. Mr. Canfield's 8 x 10 of roses was, as usual, a very attractive picture, both as regards its lighting and arrangement.

Mr. L. P. Atkinson had the only carbon print in the exhibition; it was 6½ x 8½ in size and very well done. It was labeled "Developed with Water." He had also in one frame six micro-photographs and twenty-two stereoscopic pictures in a revolving stereoscope, which he kindly loaned for the exhibition.

Two very attractive frames for holding twenty-two photogravures in different tints, were exhibited by the New York Photogravure Company, and were particularly good. A novel one was in different colors of Mr. Fennessy's residence in Springfield, Mass., from a negative by M. P. Warner. It was what might be termed a chromo-photogravure. Another interesting picture was the "Tower of Catherine de Medici;" full of exquisite detail.

Major Geo. Shorkley had twelve photographs, illustrating his success with the detective camera; some of them were 5 x 7 in size. A very pretty road along a pond, lined with old and graceful trees, was quite attractive, having a particularly clear and soft effect. His series of Creedmoor views were especially good, one being selected by the committee as the best. His picture of "Chickens" was also very interesting.

Of the six 5 x 8 views of Mr. Schedler, the instantaneous one of Niagara River Rapids was the best. The detail and clearness of the photograph was remarkable.

Mr. Otto Hesse sent five 4 x 5 miscellaneous pictures; that called "Bolton Bay, Lake George," was regarded as the best. Lieutenant Howell's exhibit of 6½ x 8½ views of Japan and scenery, printed on plain paper by Mr. Leaming, were very interesting.

The eight 6½ x 8½ photographs, in six frames, by Mr. W. B. Post, were excellently done and included several portraits; one of a girl, leaning on a fence, showed artistic posing. Another picture of horse and carriage was very well done.

Mr. Clarence S. McKune had in a single frame an excellent enlargement of an old farmer seated in a rocking chair on the piazza of his residence, sharp, clear and well arranged. His 4 x 5 view of a boat sailing was excellently done.

Three aristotype photographs, 6½ x 8½, nicely framed, were shown by Mr. E. F. Timme, and were generally good, except that they appeared to be somewhat too black in the shadows. They were, however, interesting as showing what amateurs can do with these new papers.

Lieutenant Howell contributed a large transparency of yachts, which was particularly fine, and Mr. David Williams had one of a party of girls from a negative made by the aid of the magnesium flash light, which was very good. Mr. Cobb exhibited a number of professional prints of foreign subjects.

Altogether the exhibition, though gotten up hurriedly, excited considerable interest among members and their friends; the attendance was quite large, amounting it is said to nearly a thousand. Over five thousand invitations were sent out. A special committee, consisting of David Williams, Chas. Simpson, H. T. Duffield, C. S. McKune and Edward Leaming, designated what they considered the best pictures out of each exhibit. No diplomas or prizes were awarded.

All communications for the columns of the BULLETIN *should reach us on Monday preceding the day of issue, to insure their publication at that time.*

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WET AND DRY PROCESSES CONTRASTED.

BY HENRY J. NEWTON.

[An Address before the New York Camera Club.]

In speaking to a body of amateur photographers of to-day I am probably addressing those who are not practically familiar with the wet process. I presume that, of the amateurs of the present time, not one in ten has ever worked the wet process or even seen it worked. Therefore, the task set me of making a comparison between the wet and dry methods in photography is not a very light one, as it involves the necessity of setting forth in detail all the complicated work necessary in using the wet process and the chemistry involved.

This should be done that you could more clearly comprehend the difference and perceive the contrast between the superseded wet process and the dry method of the present. I shall, however, on account of the limited time, be unable to go into any detailed comparison of different photographic processes, and treat the subject this evening in the most general way.

Certain conditions are necessary for the production of a photographic impression, whatever may be the process employed or whatever result or effect is intended, whether the process used be wet or dry. 1st, a vehicle or receptacle to carry the sensitive surface; 2d, the substance, which is sufficiently sensitive to light; 3d, chemical substances known as developers; 4th, fixing agents, which have the quality of dissolving the sensitive compound which has not been acted on by light. In my use of the word light it is taken for granted that light is one of the essentials in the production of a photographic image, and that the exposure of the sensitive surface to light is regulated by the quantity and quality or actinism of the light employed. The fact that a photographic impression can be made in the dark by mechanical appliances, as has been shown by the eminent chemist, M. Carey Lea, is of no value to the amateur beyond the fact of its being an addition to his fund of knowledge, and also intensely interesting to every student of nature, as were also the extended experiments of Humboldt in this direction, so far as darkness was concerned. He placed plates of metal a few inches apart in a dark box and left them for weeks and even months, one of the plates having a medallion surface and the other a plain surface. In time it was found that the medallion figure had made a visible duplicate impression in faint outlines on the metallic plate with the plain surface.

Primitive photographic manipulations were confined exclusively to obtaining impressions on dry surfaces. In Talbot's work there are intimations which will bear an interpretation admitting the possibility that wet, damp or moist surfaces may have been exposed to the action of light, but the absence of positive statement on this point has been interpreted against the probability of his having done so. What is known as the wet process was introduced by Scott Archer in 1851, by the use of collodion. Le Gray, however, should be credited with first suggesting the idea of using gun-cotton or collodion in photography. This marked a new epoch and the longest step in advance which had been taken up to this time. Archer introduced pyrogallic acid as a developer instead of gallic acid which had been used before, which was shortly after superseded by the use of the proto-sulphate of iron suggested by Talbot. This put the wet process about where we find it at present.

The inconvenience of transporting a dark room and all the paraphernalia necessary for field work was the incentive to experiments in dry plate photog-

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raphy. A multitude of methods were devised by many experimenters, resulting good, bad and indifferent, during the time of interest centering in the effort to produce sensitive dry plates by the bath process. A combination of chloride of silver in collodion was introduced and used mainly for producing positive prints on porcelain. This compound was known as collodio-chloride; and by making it very acid it would keep several weeks with silver in excess, which is a necessary condition of chloride of silver in order to obtain good prints. This was undoubtedly what suggested the bromide of silver and the formation of the bromide emulsion with collodion, which, together with the alkaline development, marked another important epoch in the development of photography, and resulted in the production of dry plates superior in every respect to any which had heretofore been produced, and brought them into direct competition with the bath plate, as the dry plates at that time contrasted favorably with the wet, not only in sensitiveness but also in quality. This condition of progress will carry us to the introduction of the gelatine emulsion dry plate, which in point of sensitiveness lead a long way in advance of any of the preceding methods. This marked another epoch in advance whereby instantaneous photography became much more practical, as one-twentieth or less time of exposure only was required. The quality of the negatives produced by the gelatine emulsion process has not wrested any laurels from either the wet or dry collodion formulas. It is almost the universal verdict of experts, whether amateur or professional, that the processes in which collodion is used is capable of producing more beautiful results than any other known in photography.

What appears to be the essential difference in the two processes now under consideration, consists in the fact that the substance used to carry the sensitive silver compound in one is vegetable and in the other animal. If this was all the difference between the two formulas, the results obtainable by either process would be very similar; at least there would be no marked difference in sensitiveness; but by forcing a partial decomposition of the gelatine, which is accomplished by the application of heat, greatly increased sensitiveness is the result. In the collodion formula such a result, by such a method, is not attainable, as the solution is in ether and alcohol, which fact would render decomposition by heat impossible. If it were possible to dissolve pyroxaline in water, it is theoretically possible that analogous results from similar methods might follow. That, however, is an impossibility. It is, therefore, necessary to adopt a different method in order to obtain the maximum point of sensitiveness in collodion emulsion. This is accomplished by making the emulsion with the silver in excess. The influence of this excess of silver on the collodion emulsion is, in many respects, the same as heat on the gelatine emulsion; the sensitiveness is steadily increased until it reaches the fog line, which, with a neutral collodion, would be accomplished in from twelve to fifteen hours. Heat would shorten the time. A few drops of acid to the ounce would, however, extend the time to twenty-four or even forty-eight hours. The usual process was, after it had reached the desired condition, to precipitate the emulsion from its solution in ether and alcohol with water, and thoroughly wash it. Then, after sufficient drying, dissolve again in alcohol and ether.

My process consisted in applying a suitable chloride to the ripened emulsion, which converted the excess of silver into a chloride of silver, and which proved to be a valuable salt in the emulsion, and not only rendered the emulsion a permanent

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compound but completely avoided the necessity of the great labor and expense of washing and re-dissolving. The collodion emulsion, however, could not be brought to the same degree of sensitiveness as the gelatine emulsion by this or any known process. The fog line would be reached when a degree of sensitiveness had been attained corresponding to a very sensitive bath plate. This brings us to the present time, and the few preceding years, with its improvements in the gelatine plates, which have mainly been brought about by manufacturers of commercial plates.

By referring to the history of photography during the last fifty years, it will be found that the present state of perfection of this art-science has been by the contributions of quite a large army of experimenters, some contributing more and some less; the lesser, no doubt, in many instances, have been essential contributions to the fund of knowledge which we are to-day in possession of. An important fact in this connection is that most of the discoveries which have contributed to make photography the important factor it is to-day in science, art, and mechanics, have been discovered, worked out and perfected by amateurs.

In conclusion, permit me to say that we must not fold our hands and cease to work because of the seeming perfection to which we have attained. We must realize the fact that nature holds more than a thousand secrets to every one she has permitted us to take from her great store-house, and that she holds them with great tenacity, and the price she exacts in exchange for her jewels is *labor*.

We must realize that there are multitudes of priceless gems stored in nature's mine, concealed in her dark recesses, waiting for a ray of light to illuminate some intellect, some thought to penetrate the gloom and reveal the hidden jewel. To illustrate this idea I will quote the closing paragraph of William Crooke's (F. R. S.) lecture delivered to the British Association for the Advancement of Science in 1879. The subject of the lecture was "Radiant Matter."

"We have seen that, in some of its properties, radiant matter is as material as this table. Whilst in other properties it almost assumes the character of radiant energy. We have actually touched the border land where force and matter seem to merge into one another, the shadowy realm between known and unknown, which for me has always had peculiar temptations. I venture to think that the greatest scientific problems of the future will find their solution in this border land and even beyond. Here it seems to me lie ultimate realities, subtle, far-reaching, wonderful."

PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

Meeting of Executive Committee.

First annual meeting of the Executive Committee Photographers' Association of America, held at the Revere House, Boston, Mass., January 17, 1889.

Present: H. McMichael, President; George H. Hastings, First Vice-President; J. M. Appleton, Second Vice-President; O. P. Scott, Secretary; G. M. Carlisle, Treasurer.

Meeting called to order by the President.

First order of business:

Reading reports of Secretary and Treasurer for the year ending December 31, 1888.

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Appointing of Auditing Committee. Report of Auditing Committee: "We, the Auditing Committee, have examined the books and vouchers of Secretary and Treasurer and find them correct.

O. P. Scott,
George H. Hastings,
J. M. Appleton,
Committee."

Reports of Secretary and Treasurer were received, and committee discharged.

W. I. Lincoln Adams, Editor *Photographic Times*, was appointed a Committee on the Progress of Photography.

Awards.

Resolved, That the Association award as a Grand Prize, a bronze figure, valued at $200, and governed by the following rules and regulations:

Competitors for this award shall exhibit three plain photographs, subject, Longfellow's Poem "Evangeline," size not less than 13, or larger than 22, inches in length.

Pictures to be tastily framed either with or without glass and the award to be made for the most meritorious collection.

Class A.—Four gold medals for the four best exhibits in Genre Photographs. Competitors for this class shall exhibit six photographs; subjects to be chosen by the photographer and appropriately inscribed. Size not less than 13 or more than 21 inches in length and tastefully framed with or without glass, and the award to be made for the best four collections.

Class B.—One gold, three silver and three bronze medals for best collection of Portrait Photography, in all sizes, from cabinet to 20 x 24 inclusive, and as above tastily arranged.

Class C.—One gold, one silver and one bronze medal for best collection of Landscape Photography; one silver medal for best collection of Marine Views; and one silver medal for best collection of Architectural Views.

Class D.—One silver and one bronze medal for the six most artistically retouched negatives any size; prints to be exhibited with negatives before and after retouching.

Class E.—One silver medal for the best six plain enlargements, either in silver, bromide, carbon or platinum; size not less than 18 x 22 inches.

Class F.—One silver medal for the best substitute for glass for negatives; and one bronze medal for the best and latest improvement in Photographic Appliances.

Class G.—One gold and one silver medal for the best foreign exhibits of Portrait Photography.

Competitors in all classes, except Class G, must be members residing in the United States or Canada.

American competitors in Class A cannot enter in Class B, but all can compete for the grand award.

Choosing Judges.

The President will name a chairman from competitors of each class, who shall call a meeting of those competing who shall select three judges for each class.

A competitor in any class shall have one vote, except members of the Executive Committee, who shall not be eligible to vote in any class.

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RULES GOVERNING JUDGES.

Each judge must examine exhibits separate from the others, and hand in a sealed report of his marking to the Executive Committee who shall open them in presence of the judges, and the Secretary shall take each report and determine the winners.

Should any person or persons use their influence in any way, directly or indirectly, with the judges during their term of office in favor of any exhibit, it shall be the duty of the judges to strike said exhibit from the list of competitors.

The following principal points must be considered :

1st, lighting; 2d, posing; 3d, chemical effects; 4th, general effect of finish.

Ten points to be the highest award in any one branch, consequently forty points the most that can be given to any one picture.

The exhibition of photographs connected with our convention is to be considered an art exhibition pure and simple, and in order not to detract from this standard no sign of any description shall be allowed in the hall devoted to the display of photographs, except the name and address of exhibitor.

Each picture or set of pictures must be marked with a letter signifying the class in which it competes.

All exhibits must remain on exhibition until Saturday, the 10th.

All photographs must be from negatives made since the last Ninth Annual Convention, held at Minneapolis, July 14, 1888.

One diploma will be awarded for the most tastefully arranged exhibit.

H. McMichael was made a Committee on Medals, members' badges and issue of souvenirs; G. M. Carlisle and George H. Hastings Committee on Hotels; G. M. Carlisle Committee to secure Stenographer.

The Tenth Annual Convention will be held at Mechanics' Hall, Boston, Mass., August 6th to 9th inclusive, 1889.

The Art and Merchants' department will be closed each day from 10 A.M. to 12 M., to secure a large attendance at the meetings.

The Art department will be open to the public Thursday evening, Friday, and Friday evening, admission twenty-five cents.

The first and second Vice-Presidents are a Committee to have charge of art exhibits.

Manufacturers and Merchants were made a Committee on Railroads.

G. M. Carlisle and George H. Hastings a Committee on Exhibition-Hall accommodation.

On the evening of the first day of the Convention, Edward L. Wilson, Editor "Wilson's Photographic Magazine," will give an illustrated lecture on art principals useful in photography, to be followed by discussions.

On the evenings of second and third days, evening sessions will be held for the purpose of reading papers, and discussion on same.

One of the special features of the Convention will be a clam bake at Nantasket Beach, where the entire party will have a semi-centennial group made by Mr. Hastings, of Boston.

PROGRAMME.

First Day.

1. Address of welcome.
2. Calling meeting to order.
3. Roll call.

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4. Reading minutes of last meeting.
5. Report of Special and Standing Committees.
6. Selection of location.
7. Appointment of Committee on Nominations.
8. Committee on Awards.
9. President's Annual Report.

Second Day.

1. Reading of Communications.
2. Unfinished business.
3. Report of Committee on Nominations.
4. Report of Special Committees.
5. New business.

Third Day.

1. Reading Communications.
2. Unfinished business.
3. New business.
4. Election of Officers.

Fourth Day.

1. Reading Communications.
2. Report of Committees.
3. Unfinished business.
4. New business.
5. Announcing Awards.
6. Closing ceremonies.

OUR ILLUSTRATION.

WITH this issue of the BULLETIN we present our readers with an interesting study of light and shade reproduced in photogravure from the picture, "The End of the Harvest," and made by the Photogravure Company of New York. The soft blending of the tones in the picture are worthy of special study and might well serve as a *motif* for some photographic composition.

While interested in photography I feel that I must have the BULLETIN.

HENRY SHEARER.

Will I renew my subscription? Well, I should smile!!!! (Check enclosed.) G. S. MIDDLEBROOK.

I have been a constant reader of the BULLETIN, and have gleaned a lot of valuable information from it. N. A. CHAMBERLAIN.

YOUNG Author—"Do you know that our mail service is in a most demoralized condition? It seems to take a letter an age to reach its destination." Old Friend—"Have you been troubled with it?" Young Author—"I should say I had. I sent a poem to a New York paper more than four months ago, and it hasn't been printed yet."—*Time.*

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ANTHONY'S

Photographic Bulletin.

EDITED BY

Prof. C. F. CHANDLER, Ph.D., LL.D.,
Aided by ARTHUR H. ELLIOTT, Ph.D., F.C.S.
and a corps of practical assistants.

PUBLISHED SEMI-MONTHLY.

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Advertisements should reach us not later than the Saturday preceding the issue for which they are intended, otherwise we cannot promise to publish them in the succeeding number. It is also necessary to notify us of any alteration before the date above mentioned, and to state for what period the advertisement should be continued—whether for one, six, twelve or twenty-four issues.

E. & H. T. ANTHONY & CO., Publishers.

SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

REGULAR MEETING, DECEMBER 11, 1888.

(*Continued.*)

The papers are prepared by an entirely new process, keeping their primary color for several days after being sensitized (being excluded from light and sulphur fumes in the meantime, and the way to do this is to place the paper in tin tubes made nearly air-tight).

To sensitize, float on any ordinary silver bath, and fume from twenty to thirty minutes, or swab with ammonio-nitrate of silver, made thus: To 480 grains of silver add 12 ounces of water; when dissolved, pour off one-third; to the remaining two-thirds add strong ammonia, which forms a precipitate, and still add until all the precipitate is re-dissolved, then add the remaining one-third to this; add sufficient chemically pure nitric acid, drop by drop, until the residue is nearly taken up; this needs no fuming, and when dry it is ready for use, and in Mr. Clemons' judgment makes the best prints. If the bath discolors, add a few drops of table salt solution and sun well.

In a letter to this society Mr. Clemons says: "I use my gold acid, that is, I make it up and do not drive the acid off; but when I come to use it I neutralize it with bi-carbonate of soda. But if I were to use neutral gold I then would use borax, making a saturated solution of borax, and take one ounce of the solution and six ounces of water; to this bath I would add a sufficient quantity of gold solution (15 grains to 15 fluid drams) to tone the prints in about ten minutes."

The prints were very charming and much admired by the audience.

DR. HIGGINS, at the request of the President, exhibited his new detective camera, stating in substance that it was a 4x5 camera, holding one dozen plates in six double holders, and all of them absolutely outside of the field of view. He thought most of the detective cameras in use to-day had such a variety of knobs, machinery, buttons and everything else around them, that it was pure nonsense to call them detective cameras; in fact, that they were anything else but detective cameras. He then described very minutely the various points of his invention.

The *President*—Dr. Higgins has authorized me to announce as a gift to the society, on behalf of Mr. E. L. Wilson, its editor, of a copy of his 1889 "Mosaics."

A vote of thanks was then tendered Dr. Higgins for his courtesy in exhibiting the camera to the members of the society, and also a vote to Mr. Wilson for his gift.

Mr. CHAMPNEY—Is your camera yet in the market?

Dr. HIGGINS—The camera I have shown you is a camera of my own handiwork, except the covering of leather, which, of course, I could not do. It is fully covered by Letters Patent. It is not in the market, and whether it will ever get in the market I cannot tell, such event being dependent upon its sale to some one of our large manufacturing houses.

The *President*—We will now have the screen lowered, and those who are willing to stay will see some very good pictures.

The screen was lowered and the lantern operated by Mr. Beach and Mr. Simpson. The lantern slide made during the evening, developed with hydroquinone and soda, was thrown on the screen and compared with two others of the same subject, developed with pyro and soda; one of the latter description was rather the best, having a pleasant brown color. The high lights in these and others, including slides of portraits, were remarkably clear and brilliant. Following these were a miscellaneous lot of slides made by Mr. Newton on his emulsion about thirteen years ago; some of them were of excellent quality. Next, about twenty-five collodion emulsion slides, 4x5 in size, made about twelve years ago by Dr. Higgins, after the formula furnished by the doctor to Mr. Levy, were put through the lantern, mostly copies of paintings and reproductions, exhibiting those brilliant qualities so markedly obtained by bromide emulsions.

The meeting broke up at a late hour, many subjects provided for it having to be left over till the January meeting.

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PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

SECRETARY'S REPORT.

INDIANAPOLIS, IND., December 19, 1888.

Receipts.

From G. M. Carlisle, Treasurer	$100 00
For space in stock department	1,257 70
	$1,357 70

Disbursements.

For postage	$6 70
Expressage and freight	15 00
Exchange	1 80
C. L. Jacobi, photos of stock department	10 00
Stationery for President and Secretary	13 25
Electrotypes of medals	10 00
File envelope	25
Wrapping paper for circulars	45
Envelopes for Constitution and By-Laws	50
Tubes for mailing diplomas	1 00
5,000 circulars (R. R. and Hotel information)	30 00
Paid to G. M. Carlisle	1,268 75
	$1,357 70

W. H. POTTER, *Secretary.*

LIST OF EXHIBITORS IN STOCK DEPARTMENT.

Ph. Bonte	$20 00	Brought forward	$501 10
Air Brush Co	20 00	Geo. H. Eastman	67 60
G. Cramer	67 50	Bausch & Lomb	20 00
H. Ford	20 00	Scoville Manufacturing Co	20 00
O. C. White	20 00	Smith & Harrison	20 00
J. C. Somerville	20 00	W. G. Entrekin	67 50
S. P. Cox (Lunch stand)	10 00	H. A. Hyatt	20 00
Blair Camera Co	49 40	Collins Manufacturing Co	67 50
J. H. Bryant	120 00	E. & H. T. Anthony	47 50
Bronte Frame Co	44 20	Zimmerman Bros	67 50
Packard Bros	20 00	Shultze Photo Equipment Co	20 00
J. C. Neame	20 00	Sweet & Wallach	40 00
Greer & Barryman	5 00	Caldwell	54 00
Brown & Goldsmith	5 00	Gatchell	20 00
Acme Color Co	10 00	L. W. Seavey	25 00
W. H. Walmsley & Co	10 00	M. A. Seed Dry Plate Co	67 50
McCollin & Co	20 00	O. H. Peck	87 50
Acme Burnisher Co	20 00	Allen Bros	20 00
		J. A. Knorr	25 00
	$501 10	Total	$1,257 70
Theo. Endean (failed to pay)	20 00		

W. H. POTTER,
Secretary.

"CAN you lend me twenty-five dollars this morning, Mr. Williamson?" asked a needy friend entering the broker's office.

"Sorry, Barrows, but I really can't. Mrs. Williamson went out this morning to buy a little surprise for me, and she took all the money I had."—*Harper's Magazine.*

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G. M. CARLISLE, Treasurer, in Account with the PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

Dr. *Cr.*

1888.			
Jan. 1.	Cash on Deposit		$3,326 06
	Received from 117 new members		585 00
	" " 335 old "		670 00
	" " 459 visitors, 25 cts. each		114 75
	" " dealers for floor space		1,271 70
	" " ads. in By-Laws		201 00
	" " interest to July 1, 1888		60 48
			$6,228 99

1888.			
Jan. 11.	Paid draft, No. 1, C. Gentile, balance due from 1887 Convention		$44 29
	" " 2, " printing Constitution and By-Laws		255 00
14.	" " 3, E. Decker, expense Executive Committee meeting		61 25
	" " 4, C. W. Motes, " " "		55 75
	" " 5, J. Landy, " " "		43 45
	" " 6, G. M. Carlisle, " " "		41 50
	" " 7, W. H. Potter, " " "		49 55
Feb. 6.	" " 8, F. & H. T. Anthony, expense on foreign exhibit		31 21
11.	" " 9, G. M. Carlisle, expense to Minneapolis		83 13
	" " 10, W. H. Potter, " " "		52 65
21.	" " 11, " " expense acct. sundries (see Secy's report)		100 00
March 20.	" " 12, Providence Press Co., Printing		20 60
May 15.	" " 13, Hayden & Co., badges		80 00
June 25.	" " 14, L. W. Seavey, on acct. certificates		50 00
July 9.	" " 15, Jacard Jewelry Co., medal acct		675 00
	" " 16-17-18-19, H. S. Bellsmith, com. expense		91 17
14.	" " 20, Exposition Building Co., rent		57 37
	" " 21, E. Decker, expense to Minneapolis		82 00
	" " 22, J. Landy, telegraphing by vote of Convention		2 15
	" " 23, C. W. Motes, expense to Minneapolis		80 00
	" " 24, F. W. Guerin " " "		55 70
	" " 25, I. Heggessey, shipping clerk, 10 days		30 00
15.	" " 26, W. H. Potter, expense to Minneapolis		77 50
	" " 27, Advertising in daily papers		84 61
	" " 28, Labor acct., help at Exposition Building		53 75
20.	" " 29, W. C. Cravath, stenographer and typewriter		142 07
Aug. 8.	" " 30, L. W. Seavey, bal. of certificate expense		50 00
	" " 31, G. M. Carlisle, expense to Minneapolis and return		98 85
Sept. 10.	" " 32, Anthony Memorial		150 00
Dec. 3.	" " 33-34, W. H. Potter, 10 per cent. receipts		290 29
	" " 35, G. M. Carlisle, 10 per cent. receipts		290 29
	Paid for postage		7 00
	" express		2 55
	" stationery for Convention		64
	" rent for six desks "		10 00
	" painting signs "		3 00
	" girl to tend post office		3 50
	" expense sending manuscript to journals		1 84
	" cartage		50
	" exchange on drafts and checks		3 00
			$3,311 16
	Cash now on deposit		2,917 83
			$6,228 99

PROVIDENCE, R. I., December 10, 1888. Respectfully submitted, G. M. CARLISLE, Treasurer Photographers' Association of America.

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THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

THE annual meeting of the society was held Wednesday evening, January 2, 1889, the President, MR. FREDERIC GRAFF, in the chair.

The annual report of the Treasurer was presented and ordered to be filed.

The Executive Committee made their annual report, reciting the principal events of interest in the history of the society for the past year.

One of their first duties had been to arrange for the removal from the former cramped quarters of the society to the new room now occupied, where the first meeting, with an attendance of seventy, was held on April 4th.

The average attendance for the ten stated meetings during the year was forty-six,

A list of books and journals added to the library was submitted, special mention being made of the donation from Mr. F. De B. Richards, which puts the society in possession of a valuable stock of older and rarer literature of photography, and of the gift made by Mr. George W. Childs of Muybridge's valuable Atlas of Animal Locomotion.

In the early part of the year (January 11th) a public lantern exhibition was held. Technically the display was certainly a very successful one and resulted profitably to the society.

Under the management of the American Lantern Slide Interchange, slides have been received for exhibition from New York, Pittsburg, Louisville and New Orleans, Philadelphia Amateur Photographic Club, St. Louis, Chicago and Cincinnati.

The annual distribution of presentation prints took place last fall, and while this is a custom that may be valued by some, the committee called attention to the fact that to maintain it, it costs about one-sixth as much as the annual rent paid by the society, and the considerable sum thus spent supplies the members with an article of which photographers not infrequently have a superfluity. The suggestion was made that if any prescribed number (say four or six) of the best pictures produced by members within each year, were selected by a committee and were at proper intervals bound and preserved, the society would have a valuable record of work done, and members would have quite as much of an incentive to good work as is now offered by the presentation print scheme.

Reference was made to the sudden death, on June 13th, of Mr. S. Fisher Corlies, a most genial and popular member, who had long served the society as Treasurer, doing it, as he did all things, well and thoroughly.

The Active and Life Membership, December 31st, was reported as 182.

During the year thirty-six new members had been elected. There had been five resignations and one death, making a net increase of thirty members.

The Joint Exhibition Committee announced that arrangements had been made for holding the Third Annual Joint Exhibition at the Pennsylvania Academy of the Fine Arts during the two weeks beginning April 8th. Probably three or four evenings would be devoted to the display of lantern slides. Circulars with full particulars would be issued about January 15th.

Mr. William H. Rau, for the American Lantern Slide Interchange, announced that slides from Louisville and New Orleans would be shown at the Conversational Meeting, January 16th.

The Committee on Membership reported the election of the following active members:

Eckley B. Coxe, Jr., Percy S. Marcellus, James W. Torrey, Winfield S. Clow, H. A. North, Charles M. Cresson, M.D., Herbert Harker, George A. Dunning, Theodore H. Luders, George McClellan, M.D., Walter H. Brand.

The election for officers and committees for 1889 resulted as follows:

President, FREDERIC GRAFF.

Vice-Presidents, JOHN G. BULLOCK, JOSEPH H. BURROUGHS.

Secretary, ROBERT S. REDFIELD.

Treasurer, SAMUEL M. FOX.

Executive Committee, Dr. Herbert M. Howe, Dr. Ellerslie Wallace, William A. Dripps.

Excursion Committee, Samuel Sartain, John Carbutt, W. D. H. Wilson.

Committee on Membership, Henry T. Coates, John Bartlett, George Vaux, Jr., David Pepper, Edward W. Keene, Joseph H. Burroughs, Dr. Charles L. Mitchell, Frank Bement, W. H. Walmsley.

Committee on Revision of Minutes and Articles for Publication, John C. Browne, John G. Bullock, Robert S. Redfield.

Committee on Lantern Slides—Edmund Stirling, Frank Bement, William H. Rau.

The *President* on accepting the chair for the year 1889, made the following remarks:

"I assure you I most highly appreciate the

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honor you have conferred by again electing me to preside over the affairs of the photographic society, in which I have been so long and deeply interested.

"I take great pleasure in congratulating you upon the prosperity of the society, and that it so ably maintains its reputation and influence in advancing the interest, now so general, in the useful, instructive and pleasurable pursuit we are all engaged in.

"The reports of our Executive Committee and officers are so full of details that nothing more is left in that direction for me to say.

"We certainly have reason to feel proud of the papers read and of the work of our members from time to time exhibited.

"I feel quite satisfied that in the high character of the specimens shown here of lantern slides, negatives and prints, it is evident that we not only hold our own, but steadily improve.

"I desire particularly to call attention to the exhibition about to be held jointly with the "Boston Camera Club" and the "Society of Amateur Photographers of New York" at the Academy of Fine Arts, commencing April 8, 1889, and sincerely hope that the members will use all their efforts to make the exhibition an eminently creditable one, even more so than that held three year since at the same place.

"I will not detain you by any attempt to recapitulate the new processes that have been brought forward during the past year. This is done so fully in the many journals now published, to be found upon our library table, that I should only repeat, probably with fewer details and less instruction, what they have already said.

"I think we have every reason to look forward to a year even more full of improvement than the past, which, while it has not been remarkable perhaps for any very startling new methods, has most certainly brought forth many valuable improvements on old ones. The introduction of new supports for the sensitive medium as substitutes for glass, increased sensitiveness of films, and more portable apparatus, has added to the facility of working, and given renewed inducement for amateurs to indulge in photography as a study and amusement.

"I believe all have been pleased with the neat and comfortable room we now occupy. It is, however, quite evident from the rapid and gratifying increase in our membership, that before the year expires we shall probably have outgrown the limits of our present desirable quarters.

"I cannot close without referring to the great loss sustained by the society in the death of Mr. S. Fisher Corlies. You all knew the deep interest that he took in our welfare; how he was always ready to help those not so fully educated to the work as himself, and how, as a warm friend and companion, we must miss him and mourn his loss.

"I most sincerely hope that the year 1889 will be to all of you one full of success and prosperity."

Mr. EDMUND STIRLING presented, as supplementary to Mr. Childs' recent gift, a book entitled "Animal Locomotion," "The Muybridge Work at the University of Pennsylvania; the Method and the Result," which was accepted with a vote of thanks.

Mr. BARTLETT exhibited several photographs which were interesting from a historical point of view, the property of Mr. Julius F. Sachse, of Philadelphia; they were the work of Mr. Langenheim, one of the pioneers of American photography, and antedated the days of collodion. The impressions, which date about 1850, were made from silver albumen glass negatives upon plain paper, without toning, and represented a portrait of Mr. Langenheim, one of President Fillmore, a view of the Treasury Building at Washington, and what seemed to be an instantaneous view of Niagara Falls with natural clouds.

The first attempts at negative retouching were apparent, and the importance of the process indicated by the signatures of the retoucher appearing on the prints.

Adjourned. ROBERT S. REDFIELD,
Secretary.

BOSTON CAMERA CLUB.

REGULAR MEETING DECEMBER 31, 1888.

THE meeting of the club on above date was devoted to lantern slides, Messrs. Briggs and Wilder being the contributors.

The slides embraced views at White Sulphur Springs and Kanawha, Va., Northern Vermont and Walworth, N. H., among the White Mountains.

They were much admired and enjoyed by the large audience present.

A few slides, colored by a lady artist of Boston, were shown, two of them being especially fine, a new departure in gelatine work.

THE ANNUAL MEETING of the club was held at the rooms on Monday evening, the 7th instant.

The reports of the different officers were presented, showing an encouraging state of

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affairs. The membership has increased fully one-fifth during the year, while the financial exhibit was so satisfactory that it was voted to pay fifty per cent. of the club loan from funds in the treasury.

Considerable new apparatus has been purchased and paid for during the year.

The following officers were elected for the ensuing year: President, George E. Cabot, Brookline; Vice-President, Francis Blake, Auburndale; Secretary, Edward F. Wilder, Boston; Treasurer, William Garrison Reed, Boston; Librarian, William S. Briggs, Boston. Executive Committee for three years: Charles H. Currier, Boston; John C. Hubbard, Brookline.

A pleasant feature of the meeting was an informal exhibition of work of members only.

A circular had been sent out by the Entertainment Committee inviting each member to contribute not more than two mounted prints for this exhibition.

The rules governing it were few and simple:

1st. The prints must be direct, neither enlargements nor reductions being eligible.

2d. Nothing but title to appear on the front of mount.

3d. Prize to be awarded by vote of those present at the meeting.

The response to the invitation was very general, forty-six members contributing ninety-two prints for competition, besides more than fifty for exhibition only, the latter including several enlargements.

The pictures were arranged on the walls of the club's reading-room and made a very interesting and creditable exhibition; most of the best workers being represented.

The vote, which was announced at the close of the meeting, was as follows:

No. 8. View at No. — Grafton, by C. H. Currier, received nine votes.

No. 29. Artists' Retreat, Waterville, N. H., by Wilfred A. French, seven.

No. 35. The Last Load (a hay-making scene), by William S. Briggs, and No. 7, Salting the Sheep, by Mr. Currier, six each.

The prize (a copy of Burnett's Art Essays, presented to the committee by two members of the club) was awarded to Mr. Currier.

An elegent collation concluded one of the fullest and most enjoyable meetings the club has ever held.

E. F. WILDER,
Secretary.

WASHINGTON CAMERA CLUB.

SPECIAL meeting, December 26, 1888. Informal meeting only, no quorum being present at the time of calling meeting to order. The evening was pleasantly and profitably spent by those present in experimenting with the Hubbard flash apparatus, and also with a new projector in connection with the club lantern.

ANNUAL MEETING, JANUARY 8, 1889.

Meeting called to order 8.15 P.M., *President* Richards in the chair. Thirteen members present. Two applications for membership received and posted. Report received from Album Committee relative to receipt of prints for club albums.

Under the head of new business, Messrs. Fisher and Schneider (E. A.) were appointed Audience Committee to audit treasurer's accounts for 1888, to report at next regular meeting. The following amendments were proposed to the Constitution:

Mr. G. A. Warren proposed amendment to Art. IV., Section 1, to include election of Album and Room Committees at the annual meetings hereafter, these committees having been appointed heretofore by the President; also amendment to Art. VII., Section 2, in regard to contribution of prints for club albums, amending the article to include lantern slides, and also to provide a club collection of lantern slides to be under the control of the Album Committee, to be loaned to members for a length of time not exceeding one week, upon application of same in writing, and providing a penalty for retention of same longer than one week; also an amendment by Schneider (W. E.) to Art. IV., Section 1, creating the office of Vice-President.

A vote of thanks was extended by the Club to the Hon. A. A. Adee, for contribution of volumes of *Photographic Times*, 1886, 1887 and 1888; also *British Journal of Photography* for 1888; also vote of thanks to Henry Talbott for contribution of framed pictures for club room.

Mr. Hansman made a motion relative to admission of ladies, in order to obtain the sense of the meeting. A favorable opinion seemed to prevail and at the next meeting proposals for membership are in prospect from a number of lady amateurs.

This being the annual meeting, the club then proceeded to ballot for officers for the ensuing year, with the following result:

President, Robert J. Fisher; *Secretary-Treasurer*, S. H. Griffith, M.D., U.S.N.; *Corresponding Secretary*, J. A. Cole; *Board of Trustees*, D. E. McComb, F. A. Schneider, P. T. Dodge.

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President Richards yielded the chair to the new president, a speech from whom was in order. After passing a unanimous vote of thanks to the retiring president, and other officers of the club for 1888, the club adjourned at 10.15 P.M., the next regular meeting being January 29, 1889. ALBERT COLE,
Corresponding Secretary.

PHOTOGRAPHIC SECTION OF THE MANHATTAN CHAPTER OF THE AGASSIZ ASSOCIATION.

AT the regular monthly meeting of the section, held at the rooms of the chapter, 103 Lexington avenue, New York, on Friday evening, January 18th, the annual election of officers occurred, with the following result: *President*, W. T. Demarest; *Vice-President*, W. P. Weidman; *Recording Secretary*, C. F. Groth; *Corresponding Secretary*, E. B. Miller; *Curator*, R. P. Moeller; *Librarian*, F. W. Roos; *Board of Trustees*, A. Nehrbas, F. Schneider, O. H. Lee, J. Bauermann, M. D., and J. Nehrbas.

The election was not concluded until a late hour, in consequence of which the lecture on Objectives, by Mr. Frederick Schneider, was postponed until the next regular meeting, which occurs Friday evening, February 15th, when all interested are cordially invited to attend. W. T. DEMAREST.

What Our Friends Would Like to Know.

N. B.—We cannot undertake to answer questions of a technical character except through the columns of the BULLETIN. *Correspondents will please remember this. No attention will be paid to anonymous communications.*

Q.—A. W. N. writes: Please give me the formula—How to prepare silk cloth to print silver prints on. How much gelatine to the ounce of water to coat cloth to sensatize upon. Also, please give formula for making a starch paste or parlor paste that will keep and is fit to mount photographs. Answer through columns of the BULLETIN.

A.—Make a sizing solution with gelatine, using about three grains to the ounce of water, and add to it three grains of ammonium chloride. Apply to fabric you wish to print on and allow to dry. Now apply the nitrate of silver bath with a wad of clean cotton, not touching the unsized parts. Fume well, and print under negative in ordinary manner; also tone, fix and wash as usual, lastly with hot water. The Daisy Permanent Paste made by our publishers is the most permanent paste of the kind we know of; try that.

Q.—W. S. E. writes: Please tell me, through the columns of the BULLETIN, what color paper is the best for papering a photographic parlor, to show display pictures to the best advantage; and also the ceiling—the room has only two windows at one end—and the best color paper for the operating room, and paint for wood work.

A.—Use a maroon with a flat finish for the walls of parlor, and a ceiling covered with a faint tinge of blue. In the operating room use neutral tint or gray. This also applies to the painting of wood work.

Q.—R. J. T. writes: Can you inform me, through the columns of the BULLETIN, the following: What is the chemical action on the plate, at the time of exposure, that causes the picture?

A.—There are a variety of opinions on this subject. As a matter of fact, the chloride, bromide, or iodide of silver, is decomposed, and some of the iodine, bromine or chlorine, as the case may be, is set free. This can be demonstrated after continued exposure for some time. But it is our own opinion that the effect of the light upon the gelatine plate, for instance, is to disturb the chemical force that holds the halogen and the silver together, and that they are then in a condition to be affected by the developer. But this is only an opinion; what we need is more research upon this interesting phase of photography.

Q.—F. M. L. writes: I send you two prints for your examination. If you can tell the cause of the trouble and answer in the next publication of the BULLETIN you will confer a favor on me, which I will appreciate. When the prints are made, no matter how nice and blue they print up, and put into water to wash out the silver preparatory to toning, they turn nearly blood red, simply in the water (nothing put in the water to redden them). When toned and put in the fixing bath they turn yellow almost immediately, but turn some darker when fixed and dried. Fresh silvered paper and the ready sensitized act just the same. Negatives developed in the same kind of water come out fine. Prints made at my home (which is several miles from the gallery) don't act so. We use the same formula or process at both places throughout. Now can it be in the printing bath, when the ready sensitized paper acts just the same? If the trouble be in the water, can you tell how to remedy it?

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A.—Your trouble is probably due to the use of water that contains some acid materials. Try adding a little lime water to your wash water before using and allow it to settle. Use about an ounce of good, clear lime water to the quart of water, shake well and allow it to settle before use. You can also get much better results than the prints you send if you will thoroughly fume your paper before you use it; fume with strong ammonia solution thirty minutes.

Views Caught with the Drop Shutter.

W. STUBER & BRO., of Louisville, Ky., have left their old quarters and taken new, larger and more handsome premises in the Parr Block, 532 Fourth avenue. We wish them every success in their enterprise.

THE ACME BURNISHER COMPANY obtained the medal of superiority for their burnishers at the late exhibition of the American Institute Fair in New York. This is the highest award given by the Institute.

MR. REEVES, of Norwich, Conn., the inventor of the Reeves flash-light apparatus, has been using his invention in his studio every night for the past three months and with uninterrupted success. This is a pretty good test of its value and durability. We have ourselves seen it used very often, and the results obtained are uniformly good.

THE ALBERTYPE CO., of 58 & 60 Reade street, New York, send us a very pretty calendar for 1889. It is full of little gems of their work, and we tender our thanks to the company for remembering us.

The Philadelphia Photographer as a name is no more; but as a progressive magazine of photography will continue to be edited by Dr. Edward L. Wilson, and in future will be known as "Wilson's Photographic Magazine." May its editor carry it through another quarter century.

"SUN AND SHADE" is again on our table. The January number is perhaps a little better than its predecessors, if that can well be. It is a pictorial record of artistic events, showing the onward march of photography in the domain of book and magazine illustration. As a novel method of exhibiting the progress of photo-mechanical printing it stands without a rival. The number before us contains a photogravure, "A June Morning," after Corot; another print by the same process, "Winter," by H. Rittig; a gelatine print, "Canon of the Rio Las Animas," by W. H. Jackson, of Denver, Col.; another gelatine print called "Modesty;" another showing some of Mr. Muybridge's studies in animal locomotion, and George F. Barker's "Horse Race," besides a number of others that lack of space compels us to pass unnoticed. This number is a particularly good one, and well worthy of study.

E. J. PARTRIDGE, brother of our good friend, Samuel C. Partridge, of San Francisco, has started as a photographic merchant at Portland, Oregon.

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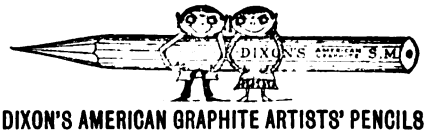
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FIRST. Its local name will be changed to one which will be more in keeping with the wide growth of Photography. *The Philadelphia Photographer* will go out of existence, after twenty-five years of service, and WILSON'S PHOTOGRAPHIC MAGAZINE will take its place. There will be no change in editor, publisher, or owner, nor in the publication, except as to details.

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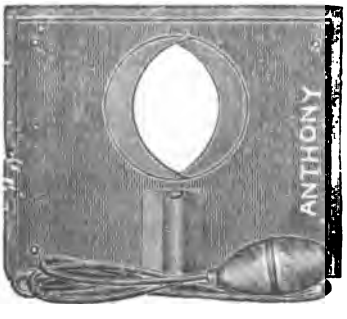
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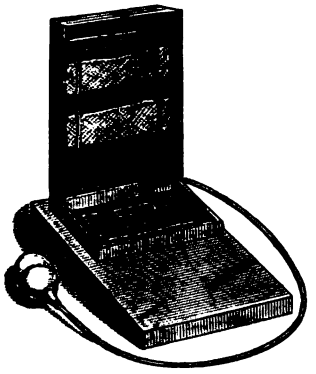
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(PATENT APPLIED FOR.)

THIS new and unique lamp renders it possible to make fully exposed negatives at night with results equal to and not distinguishable from daylight pictures.



Reference to the cut shows its simplicity and easy method of using. The rimmed back, 7 x 9½ inches in size, holds horizontally two wicks, the pan below has other wicks or pads of cotton wool, surrounding the bowl of an ingeniously shaped brass blow-pipe, to which is attached rubber tube and bulb. To use it the pipe is charged with powdered metallic magnesium, a small quantity of alcohol poured on the wicks, which when lighted give a very large flame (the width of the back and several inches higher), pressure on the bulb fires the magnesium through the blaze, the result being a flash of tremendous size and actinic power. Then the back, which is hinged, is shut down, at once extinguishing the blazing alcohol.

There is no smoke, and there being no reservoir for alcohol, there is absolutely no danger of explosion.

The bowl of the blow-pipe is so designed that it spreads the magnesium in a fan-like shape through all parts of the flame, using only about twelve grains of powder.

Inside the hinged back are hooks to fasten the wicks, also a false back with curved bottom to convey the superfluous alcohol from upper wicks into lower pan. The back has spring to set it at any angle; there is a guard or fender to blow pipe to prevent it overheating, and cover for same. The whole is well and strongly made throughout of Russia iron, neatly mounted on metal-covered board, packed in box.

The results attainable with this lamp are simply astonishing; it will illuminate the largest sitting-rooms, so that the smallest detail at furthest end of room are well defined on negative. The flash being so large and well diffused there are no sharp shadows; for the same reason the light is not so trying on the eyes as when the flash proceeds from a point, as with the explosive compounds.

Full instructions inclosed with lamp.

Price complete, including rubber tube and bulb, wicks, etc. - $3.00

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The paper is printed same as an Albumen Print. When required shade is reached, it is washed in water containing a few drops of muriatic acid, washed and dried. The resulting picture is **PERMANENT.**

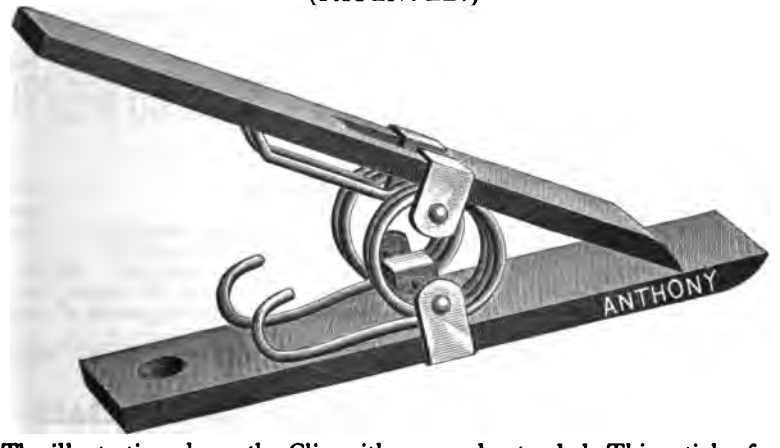
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4 x 5, per package, - -	$0 62	5 x 8, per package, - -	$1 20
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The illustration shows the Clip with one end extended. This article, from its form of construction, is much more durable than any other in market for same purpose. The change from long to short clip is effected in an instant, and there is nothing about it to break or get out of order.

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After many and costly experiments we have succeeded in producing a Bromide Paper which far excels any heretofore made, and which we are enabled to make perfectly uniform.

This paper we now introduce to the trade under the name of Improved Reliable Bromide Paper, feeling assured it meets the requirement for an absolutely reliable article.

This paper we are obliged to sell at a rather higher price than the paper we have hitherto made; but as it will be of superior quality, and also has our guarantee, it will be well worth the difference to the purchaser.

The Improved Reliable Bromide Paper will be made both in quick (manilla color wrappers) for use with Cooper Enlarging Lantern, and in slow (blue wrappers) for day-light.

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5 x 7	65	18 x 22	7 50
5 x 7½	70	20 x 24	9 00
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WE DO NOT MAKE ENLARGEMENTS FOR THE TRADE.

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E. & H. T. ANTHONY & CO.

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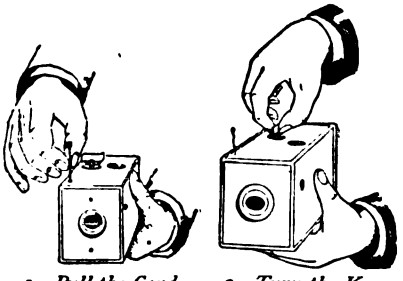
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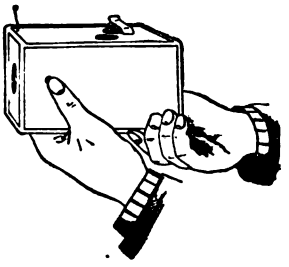
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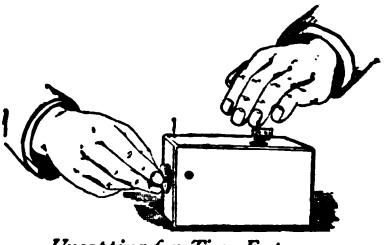
ANYBODY CAN USE IT.

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Size of Picture, 2⅝ in. diameter.

PRICE, - - - $25.00



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Price includes hand-sewed sole leather Carrying Case, with shoulder strap and film for 100 exposures.

Amateurs can finish their own negatives or send the roll of exposed films to the factory by mail to have them developed and printed.

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ANTHONY'S
Photographic Bulletin.

Prof. CHARLES F. CHANDLER, Ph.D., LL.D., *Editor.*
ARTHUR H. ELLIOTT, Ph.D., F.C.S., *Associate Editor.*

FEBRUARY 9, 1889. Vol. XX.—No. 3.

PHOTOGRAPHIC CHEMICALS AND THEIR IMPURITIES.

Among the many chemicals used in photography, the alkaline salts are the most important and often contain the greatest quantity of impurities. A number of these impurities are incidental to the processes by which the salts are manufactured, and not being easily eliminated in the course of purification, may cause very serious trouble when used for photographic purposes. Taking sodium carbonate as the first, and, perhaps, most useful alkaline salt in the process of development, let us stop a moment to consider the several processes by which it is made and the impurities it is likely to contain.

There are three processes from which the sodium carbonate of the American market may be obtained. The first of these is the old Leblanch process; the second, the Solvay or ammonia-soda process; and third, the cryolite process of the Pennsylvania Salt Company.

It is probable that most of the soda crystals are made from products produced by the Leblanch soda process, as practised in England. Without going into details, this process consists in first converting sodium chloride (common salt) into sodium sulphate by the aid of sulphuric acid; then by roasting this sodium sulphate with coal and limestone, the sulphate is converted into sodium carbonate ("crude soda ash" as it is called); this last product after crystallizing gives us the soda crystals of commerce. The sources of the impurities in this method of manufacture are numerous. The common salt used for the purpose is reasonably pure; at least the impurities are generally only lime and magnesium salts, which do no harm as far as photography is concerned. But as soon as the sulphuric acid is added, we begin to introduce a number of impurities. This acid as made in England often contains arsenic and nitrous compounds, which, when brought into contact with the sodium chloride, forms compounds with it that are by no means easily eliminated from the subsequent products. When we remember the exceedingly minute quantities of material that effect the photographic image, we are constrained to believe that the traces of arsenic often found in soda crystals may have some important effect upon photographic results. Yet the quantity of arsenic is exceedingly small in even the crude soda crystals, and possibly its presence is unimportant; nevertheless it is very active in its reactions and may have an influence far exceeding our expectations. But this is

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not the most important impurity in soda crystals. The most serious trouble comes from the impurities introduced during the conversion of the sodium sulphate into carbonate by roasting with coal and limestone. Having made this roasting, the crude semi-fused mass is treated with water, which dissolves the sodium carbonate formed and gives the liquors from which the sodium carbonate crystals are ultimately obtained. An examination of these liquors reveals the fact that, in addition to the sodium carbonate which they contain, there is also present sulphite, hyposulphite, sulphide, and cyanide of sodium. It is obvious that unless the sodium carbonate is crystallized several times, traces of all these compounds find their way into the crystals. Their effect upon the photographic work done with such crystals is the more dangerous, according to their amount.

It is too true that there is much crude soda crystals in use that contain considerable quantities of sodium sulphate. This impurity is harmless, but it is an index of imperfect purification, and such crystals should not be used for photographic purposes. If one impurity is present in large amount, it is reasonable to suppose that others of more importance, and not as easily eliminated, are also present.

Fortunately we are not confined to the use of soda crystals, and there are two products in the American market that are admirably fitted for photographic use. Only they must be used with judgment. These products are the sodium carbonate made from cryolite, and a like product made from common salt by the ammonia process.

The first of these is perhaps the purest commercial sodium carbonate made, its only impurities being traces of alumina and lime. In using it, remember that it is dry sodium carbonate without any water of crystallization; consequently only about thirty-seven per cent. of the weight given for the crystals should be used.

The sodium carbonate made by the ammonia process is perfectly free from the dangerous impurities incidental to the Leblanch process ; but it contains two products that result from its method of manufacture. One of these is ammonia salts and the other is an excess of carbonic acid. Dry sodium carbonate made by the ammonia process often gives a faint odor of ammonia, due to the volatilization of the ammonic carbonate which it contains. The presence of the excess of carbonic acid in this last variety of sodium carbonate is due to the imperfect heating of the sodium bicarbonate, which is one of the steps in the process of manufacture. There is no particular harmful influence exerted by this excess of carbonic acid, but it makes it very difficult to determine the true strength of the material. It is almost impossible to know how much real sodium carbonate there is in such a product, the sodium bicarbonate being of little use as a developing agent.

Our space is now exhausted, but we shall return to this question of impurities in chemicals at an early date.

EDITORIAL NOTES.

Franz George Schreiber, now in his eighty-sixth year, and probably one of the first men to make photographs in America, is enjoying excellent health, surrounded by his family in the city of Philadelphia. He was, early in his career, associated with Langenheim and worked with him in the production of daguerreotypes. We hope soon to be able to give an account of his life. We

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must now extend to him our congratulations upon his good health and the high regard in which he is held by those who know him.

An International Photographic Festival, in commemoration of the fiftieth anniversary of the discovery of the daguerreotype, is to be held at the Crystal Palace, in London, commencing March 19th next. All communications in regard to space and rules should be addressed to S. G. Buchanan Wollaston, or John Francis Peasgood, at the Crystal Palace, Sydenham, London.

The Society of Amateur Photographers of New York have secured space and intend to make an exhibit at the International Exhibition to be held in Paris this year. They will have a representative there to attend to their interests.

At the annual meeting of the Syracuse Camera Club, held January 5th, the following officers for 1889 were elected: *President*, Arthur P. Yates; *Vice-President*, Amos Padgham; *Secretary*, Wallace Dickson; *Treasurer*, Charles R. Jones.

The Case School Camera Club of Cleveland, Ohio, has organized, with the following officers: Professor C. F. Mabery, S. D., *Hon. President;* Albert W. Smith, Ph. C., *Hon. Vice-President;* Frank E. Hall, *President;* Lafayette D. Vorce, *Vice-President;* J. Frank Morse, *Secretary and Treasurer;* Milton B. Punnett, *Corresponding Secretary.* As the club includes quite a number of the professors and students of the Case School of Applied Science, who are well versed in chemistry, it is expected that this phase of our art will receive more attention than is usually given to it by ordinary societies.

Mr. Hector Kraus, of Harrisburg, sends us the following as a method of reducing bromide prints that are too dark, and he says that he has saved many a valuable print with it: Make a saturated solution of chloride of lime, and filter it perfectly clear. Dilute one part of this solution with four to eight parts of water, and apply it to the fixed and washed print either in a bath or by flowing. If it acts slowly add more of the stock solution. It is best to use a weak solution, as the action is more under control. When the print is sufficiently reduced, wash well. The solution may be used a number of times; it does not discolor the print nor stain the paper.

The Old Colony Camera Club, of Rockland, Mass., organized January 23, 1889, with W. G. E. Freeman as *President* and Burton O. Estes as *Secretary.*

In September, 1888, the amateur photographers of Atlanta, Georgia, organized a Camera Club, with Sumner Salter as *President* and F. J. Paxton as *Secretary.* The membership numbers about thirty, and although one of the youngest of the societies, it is doing excellent work.

Mr. James Streeter, of Rochester, writes us that the Photographic Section of the Rochester Academy of Science has ceased to exist, and that a new society has been formed which bids fair to be more successful. The new organization is called the Camera Club of Rochester. It has sixty-two members and Mr. Peter Mawdsley is the *Secretary.*

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THE Camera Club of the Cincinnati Society of Natural History is still doing good work. At a recent meeting Mr. E. J. Carpenter read a paper on "Lenses and Lens Work," and an exhibition of the slides of the Pittsburgh club followed.

WE are indebted to the manufacturers of the celebrated N. P. A. Albumen Paper for their annual present of a handsome "Tree Cake," which is always an object of interest to receive and token of kind remembrances from across the water.

FROM Dr. Alexis A. Julien, of the School of Mines, Columbia College, we have received some interesting papers upon the "Decomposition of Iron Pyrites," illustrated with photomicrographs. To those who are interested in mineralogy, this work is a very complete and well-arranged report upon the subject. We have to thank Dr. Julien for his kind remembrance.

YET another amateur photographic society sends us notice of its organization. This is the "Hawaiian Camera Club," of Honolulu, with C. Hedemann, *President;* G. W. Smith, *Vice-President;* and A. W. Richardson, *Secretary-Treasurer.* There are about fifty members in the Hawaiian Islands.

MR. H. H. SNELLING, of Cronwell, New York, has a complete set of his "Photographic and Fine Art Journal," which he would like to dispose of. Should any of our readers desire to possess such a valuable set of one of the earliest photographic journals of America, they should communicate with Mr. Snelling.

MR. LANDY's beautiful picture of "Hiawatha," which took the Blair Cup at the Minneapolis Exhibition of the Photographers' Association of America, also obtained a "Medal of Superiority" at the recent exhibition of the American Institute in New York.

[*From Photographisches Wochenblatt.*]

COMPARISON OF THE SODA, POTASH, AND HYDROQUINONE DEVELOPERS, WITH POTASSIUM-METABISULPHITE, AND SODIUM HYDRATE AS ACCELERATOR.

BY CAPTAIN EUGENE HIMLY.

THE reports published lately in English, American and German journals about potassium-metabisulphite, have induced me also to make some tests with this preparation, partly to obtain a clear idea how small a quantity of hydroquinone is required to work with, and partly to find out how much potassium-metabisulphite is necessary for the preservation of the stock solution, whether from pyrogallic acid or from hydroquinone. In regard to hydroquinone, it is shown that 0.4 gram for each 100 cm. developing solution is the smallest quantity. If still less is employed, the development is very much retarded. As many professionals and amateurs work with hydroquinone soda or potash developer, and as the duration of such development is always from seven to eight minutes, I was thinking whether the employment of a preparation as accelerator was not advisable. I tried a small addition of caustic soda and caustic potash, that is, 200 of a solution of 50 parts caustic soda or caustic potash to 400 parts of water. The appearance of the first traces of the image was thus considerably accelerated and the duration of development reduced. The following table shows the several results. Concerning,

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now, the quality of the negatives, they were good and useful with all the different developers, but it was apparent that the application of the caustic soda or caustic potash with soda or potash developers gives the more brilliancy and more detail, aside from the fact that the development is shortened by several minutes.

The potassium-metabisulphite retards the development very much if applied in too large quantities, but it preserves the stock solution considerably better than sulphite of soda alone. But it is not advisable to leave out the sulphite of soda or reduce the quantity of the same in the formulas, the color of the negatives being influenced very favorably by it. Potassium-metabisulphite colors the negative in the soda or potash pyro developer yellow, and the sulphite of soda weakens greatly this coloration; the addition of potassium bromide can easily be dispensed with by application of this preparation.

By means of these tests I can recommend the following developer solution with hydroquinone.

HYDROQUINONE-CAUSTIC SODA DEVELOPER. SOLUTION A.

Hydroquinone	10 parts.
Potassium-metabisulphite	4 "
Water	250 "

SOLUTION B.

Caustic soda	50 parts.
Water	500 "

For every 100 parts of water take 10 parts solution A and 10 parts solution B.

This developer acts very well for negatives, but not for positives on bromide of silver emulsion paper, producing an uneven and mostly reddish tone.

HYDROQUINONE-POTASSIUM DEVELOPER. SOLUTION A.

Hydroquinone	10 parts.
Potassium-metabisulphite	4 "
Water	250 "

SOLUTION B.

Carbonate of potassium	100 parts.
Sulphite of soda	50 "
Water	1000 "

Take for each development 10 parts solution A, 50 to 75 parts solution B, and 50 or 25 parts of water, according to whether a weak or strong developer is desired.

To accelerate development add 2 c.c. caustic soda solution (50 : 400 water), this addition having also a favorable influence upon the color of the picture. For the develpment of positives it is also very suitable.

HYDROQUINONE-SODA DEVELOPER. SOLUTION A.

Hydroquinone	10 parts.
Potassium-metabisulphite	5 "
Water	250 "

SOLUTION B.

Carbonate of soda	100 parts.
Sulphite of soda	50 "
Water	1000 "

For each development take 10 parts of solution A, 50 or 75 parts of solution B; to this add water, 25 or 50 parts. One is thus enabled to work with weak or strong developer.

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This developer will also act considerably better if 2 c.c. of a caustic soda solution (50 : 400 of water) are added as accelerator. The same acts also excellently for positives upon bromide of silver emulsion paper, and works to great advantage by developing the same very uniform in tone.

It is to be recommended here to place the positives, before washing, in a weak solution of acetic acid, and leave them in the same for a short time. Positives of a yellowish appearance regain hereby their white color.

The application of bromide of potassium as retarder is unnecessary, the potassium-metabisulphite acting sufficiently.

The additions of potassium-metabisulphite, as well as the weak caustic soda solutions, having acted so favorably, I extended the tests to the soda-pyro and potassium-pyro developers. There it proved also that potassium-metabisulphite acted as a strong retarder. I tried likewise here to prevent this by an addition of 2 c.c. of a weak caustic soda solution, and was greatly surprised at the favorable results which I obtained. I have seen nothing yet about this in any of the journals, and its publication might therefore be of interest to a great many. I would not advise using more potassium-metabisulphite than given in the formula, as otherwise it retards still more.

It is also deserving notice that the preparation "Excelsior," introduced by me into the market (and as published by Dr. Eder several years ago), acts excellently with the soda developer. The table shows this exactly, but the prepa- of the potassium developer does not act acceleratively. The other favorable proportions in the action of the Excelsior remain the same.

Formulas.	Parts of Pyro Solution.	Parts of Soda Solution.	Parts of Water.	Parts of Excelsior.	Parts of Caustic Potassium Solution 50: 400 Water.	The Picture Appears After Seconds.	Duration of Development.
Pyro-Soda Developer.							
Pyro Solution.							
Sulphite soda ..... 100 grams.							
Water ..... 500 "							
Sulphuric acid ..... 8 drops.							
1. Pyrogallol ..... 14 grams.	25	25	25	....	....	20	3½ minutes.
Soda Solution.							
Carbonate soda ..... 100 grams.							
Sulphite soda ..... 50 "							
Water ..... 1000 "							
Pyro-Soda Developer.							
Pyro Solution.							
Water ..... 500 grams.							
Sulphite soda ..... 100 "							
Potassium-metabisulphite ..... 5 "							
Sulphuric acid ..... 8 drops.							
2. Pyrogallol ..... 14 grams.	25	25	25	....	....	25	3½ minutes.
Soda Solution.							
Carbonate soda ..... 100 grams.							
Sulphite soda ..... 50 "							
Water ..... 1000 "							
By Formula 1	25	25	25	2	....	14	2½ minutes.
" 2	25	25	25	2	....	18	2⅛ minutes.
" 1	25	25	25	....	2	14	2 minutes.
" 2	25	25	25	....	2	18	2½ minutes.
" 1	25	25	25	....	2	12	
" 2	25	25	25	2	2	17	

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	Formulas.	Parts of Pyro Solution.	Parts of Potash Solution.	Parts of Water.	Parts of Excelsior.	Parts Caustic Potash, 50:400 Water.	Parts Caustic Soda, 50:400 Water.	The Picture Appears After Seconds.
	Potassium Developer							
	Water..... 500 grams.							
	Sulphite soda..... 100 "							
	Sulphuric acid..... 8 drops.							
3.	Pyrogallol..... 14 grams.	25	25	25	....	....	....	12
	Carbonate potash..... 100 grams.							
	Water..... 1000 "							Duration of Development, 3 minutes.
	Sulphite soda..... 50 "							
	Potassium Developer.							
	Water..... 500 grams.							
	Sulphite soda..... 150 "							
	Potassium-metabisulphite..... 5 "							
	Sulphuric acid..... 8 drops.							
4.	Pyrogallol..... 14 grams.	25	25	25	....	....	....	25
	Carbonate potash..... 100 grams.							
	Water..... 1000 "							Duration of Development, 3 minutes.
	Sulphite soda..... 50 "							
	By Formula 3.....	25	25	25	2	....	....	30
	" 4.....	25	25	25	2	....	....	48
	" 3.....	25	25	25	....	2	....	19
	" 4.....	25	25	25	....	2	....	19
	" 3.....	25	25	25	....	....	2	17
								Duration of Development, 2 minutes.
	" 4.....	25	25	25	...	....	2	17
								Duration of Development, 2 minutes.

	Formulas.	Parts Hydroquinone Solution.	Parts Caustic Soda Solution, 50 : 400 Water.	Parts Water.	Soda Solution. Carbon Soda, 100 grams. Sulphite Soda, 50 grams. Water, 1000 grams.	Potash Solutions. Carbon Potass. 100grams. Water, 1000 grams. Sulphite of Soda, 50 grams.	Parts Caustic Potash Solution, 50 : 400 Water.	The Picture Appears after Seconds.	Duration of Development.
5.	*Hydroquinone Developer.*								
	Hydroquinone..... 10 grams.								
	Sulphite Soda..... 25 "								
	Water..... 250 "	10	10	100	.....	.....	.....	39	5 minutes.
	Caustic soda..... 50 grams.								
	Sulphite soda..... 50 "								
	Water..... 100 "								
6.	*Hydroquinone Developer.*								
	Hydroquinone..... 5 grams.								
	Water..... 125 "								
	Potassium - metabisulphite..... 2 "	10	10	100	.....	.....	.....	46	7½ "
	Caustic soda..... 50 grams.								
	Sulphite soda..... 50 "								
	Water..... 400 "								
7.	*Hydroquinone Developer.*								
	Hydroquinone ..... 5 grams.								
	Water..... 200 "								
	Potassium - metabisulphite..... 4 "	10	10	100	.....	.....	.....	55	10 "
	Caustic soda..... 50 grams.								
	Sulphite soda..... 50 "								
	Water..... 400 "								

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Formulas.	Parts Hydroquinone Solution.	Parts Caustic Soda Solution, 50 ; 400 Water.	Parts Water.	Soda Solution. Carbon Soda, 100 grams. Sulphite Soda, 50 grams. Water, 1000 grams.	Potash Solutions. Carbon Potass, 100 grams. Water, 1000 grams. Sulphite of Soda, 50 grams.	Parts Caustic Potash Solution, 50 : 400 Water.	The Picture Appears after Seconds.	Duration of Development.
Hydroquinone..... 10 grams. Water..... 250 " Sulphite soda..... 25 "	10	....	25	75	.....	.....	55	7 minutes.
Hydroquinone..... 5 grams. Water..... 125 " Potassium - metabisulphite..... 2 "	10	....	25	75	.....	.....	56	8 "
Hydroquinone..... 5 grams. Water... ..... 200 " Potassium - metabisulphite..... 4 "	10	....	25	75	.....	.....	75	12 "
Hydroquinone..... 10 grams. Water..... 250 " Sulphite soda..... 25 "	10	2	25	75	.....	.....	25	4½ "
Hydroquinone..... 5 grams. Water..... 125 " Potassium - metabisulphite..... 2 "	10	2	25	75	.....	.....	40	5 "
Hydroquinone..... 5 grams Water..... 200 " Potassium - metabisulphite..... 4 "	10	2	25	75	.....	.....	50	8 "
Hydroquinone..... 10 grams Water..... 250 " Sulphite soda..... 25 "	10	....	25	.....	75	.....	27	5½ "
Hydroquinone..... 5 grams. Water..... 125 " Potassium - metabisulphite..... 2 "	10	....	25	.....	75	.....	36	6½ "
Hydroquinone..... 5 grams. Water..... 200 " Potassium - metabisulphite..... 4 "	10	....	25	.....	75	.....	72	10 "
Hydroquinone..... 10 grams. Water..... 250 " Sulphite soda..... 25 "	10	2	25	.....	75	.....	15	3½ "
Hydroquinone..... 5 grams. Water..... 125 " Potassium - metabisulphite..... 2 "	10	2	25	.....	75	.....	16	3 "
Hydroquinone..... 5 grams. Water..... 200 " Potassium - metabisulphite..... 4 "	20	2	25	.....	75	.....	47	6 "
Hydroquinone..... 10 grams. Water..... 250 " Sulphite soda..... 25 "	10	....	25	.....	75	2	30	4½ "
Hydroquinone..... 5 grams. Water..... 125 " Potassium - metabisulphite..... 2 "	10	....	25	.....	75	2	40	5 "
Hydroquinone..... 5 grams. Water..... 200 " Potassium - metabisulphite..... 4 "	10	....	25	.....	75	2	64	9 "

As seen in the tables, experiments were also made with caustic potash, but as they gave less favorable results than caustic soda, and the former being considerably dearer, I would advise only the use of the caustic soda, particulary as

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it can be obtained in a much purer state. The caustic potash has frequently an addition of carbonate of potassium.

Finally, it may be said that Dr. Eder's remarks, published in the "*Correspondenz*," agree very much with my observations. *Translated by H. D.*

ELEMENTARY STUDIES IN ORTHO-CHROMATIC PHOTOGRAPHY.

By Henry G. Piffard, M.D., *New York.*

[Read at a Meeting of the New York Camera Club, January 5, 1889.]

The fact that red and yellow, both bright light-giving colors, photographed dark, and that blue, a comparatively feeble color, photographed light, has been a prominent obstacle in the path of artistic progress since the first steps were made in the art and science that we seek to cultivate. The many brightly shining flowers, as the rose, the carnation or the tulip, give us images that but faintly represent the beauties with which nature has adorned them; while many of the azure blossoms of the garden or field, when pictured, suggest a sickly ghostliness rather than the beautiful life they represent.

If you inquire why this is so, the scientist will tell you that it is because the iodide and bromide of silver with which photographic plates are prepared are comparatively insensible to the less refrangible, while they are exceedingly sensitive to the more refrangible rays of the spectrum. This explanation, which should be quite satisfactory to those who have been students of science, may not prove perfectly intelligible to such as are not familiar with the meaning of the terms above used. A few words, however, with a simple experiment or two, will render this matter perfectly clear, and plant us on the first step leading to the understanding of the principles that underlie the practice of so-called ortho-chromatic photography.

Experiment I.—If we permit a beam of ordinary light to pass through a narrow slit and fall upon a screen in a darkened chamber we find on the screen simply a narrow band of white light.

Experiment II.—If we now interpose a glass prism between the slit and the screen we find, instead of the narrow beam of white light, a broad band of many colored lights, having red at one end and violet at the other, with orange, yellow, green, blue and indigo as intermediate colors. This parti-colored band is called a spectrum. The rays at the red end, in passing through the prism, are bent slightly out of their course, but less so than any of the other rays, and are spoken of as the rays of least refrangibility; while those at the violet end are bent the most and are called the most refrangible rays.

Experiment III.—If we now put a photographic plate in the place of the screen and allow the spectrum to fall on it for a moment, and then take the plate into the dark room and develop it, we will find that the portion of the plate on which the violet rays rested has been violently affected by the light and develops up black just as if ordinary white light had struck it. This effect of light, however, shades off, and the portions of the plate which corresponded to the green, yellow and red fail to respond to the developer. After the plate has been cleared in the hypo we find that the blue and violet portions of the spectrum have produced the effects of high lights, while the rest of the plate is clear glass. In other words, red, orange and yellow, which are high lights in relation to the eye, are negative in their relation to iodide and bromide of silver, while violet and blue, even a very dark blue, act as a high light in their effect on the chemicals contained in the plate. Hence it is that the ordinary plates of commerce are defective in that they fail to render the colors of the spectrum, and the brilliant colors of nature and of art, according to their correct luminous values.

Such was the state of our art before Ives, Vogel, Eder, Schumann, Mallman, Scolick, Abney and others sought to remedy the defect. These gentlemen have made thousands of experiments, have exposed thousands of plates, and the result has been the birth of a new art, that of otho-chromatic photography, which,

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though in its infancy to-day, promises to create a revolution in present methods as great as that caused by the introduction of the gelatine plate by Dr. Maddox.

In ortho-chromate photography, Ives worked chiefly with collodion, while the other investigators above mentioned have devoted their energies to the application of ortho-chromatic processes to gelatine plates.

The terms "ortho-chromatic" (literally meaning *correct color*) and "iso-chromatic," meaning *equal* color, are distinct misnomers, inasmuch as this phase of photography has nothing whatever to do with the correct or equal rendering of the colors as such, but simply deals with their luminosity and actinism, and the goal sought is to bring these two qualities into exact correspondence. In other words, to confer a greater degree of actinism upon the more luminous and to restrict the actinism of the less luminious colors.

A more correct term by which to express this phase of our art is the simpler designation, ortho-photographic (meaning correct or true light writing), and the special plates employed may be termed ortho-photic plates.

By means of such plates yellow and red are no longer reproduced as black, and blue as white, but the former appear as high-lights and half-tones, and the latter even darker. This statement alone sufficiently indicates the immense value of the new process as an aid to artistic photography, and a comparison of the results obtained by the use of ortho-photic plates with those obtained on ordinary plates should be sufficient to satisfy the most sceptical, and lead to the almost universal use of the new methods.

A few comparisons between ordinary and ortho-photographs of colored objects will illustrate the differences to which I desire to call your attention.

These illustrations clearly demonstrate that certain plates are very sensitive to the brighter colors, while others are comparatively insensitive to them. The former are commonly called ortho-chromatic or color-sensitive plates, and may be prepared by several different methods, which methods, however, have one feature in common. This common and apparently necessary feature is the addition of certain extraneous substances to the ordinary sensitive emulsion either before or after the plate is coated. There are then two general processes in vogue. The first of these consists in adding the special color sensitizer to the emulsion itself before the plates are coated, and when prepared in this way they may be termed ortho-photic emulsion plates. The second method consists in taking an ordinary commercial plate, bathing it for a few moments in a suitable solution and then putting it away in a dark box until required for use. These may be called ortho-photic bathed plates.

The comparative advantages of emulsion and bathed plates may, speaking from my own experience, he briefly stated as follows:

The emulsion plates are a commercial article being offered by several European and one American maker, and hence can be as readily obtained as ordinary plates. They are reasonably durable. Mr. Carbutt has assured me that his ortho-chromatic plates will keep at least a year, and I have personally exposed these plates which were more than six months old. On the other hand they do not appear to possess as great general sensitiveness as certain bathed plates.

Bathed plates possess the advantage of being quicker, and may be prepared in a few minutes from ordinary plates. By varying the bathing solution quite striking differences in result may be obtained, as I shall presently demonstrate. These plates, however, do not keep well, rarely remaining in good condition more than a few weeks, and some of them are worthless after a very few days.

Quite a number of different substances have been employed with greater or less success in the preparation of ortho-photic plates, especially chlorophyll by Ives with collodion plates, cyanin for increasing the luminous effect of red, and erythrosin and eosin for imparting similar qualities to yellow and green. These two latter substances, however, are the ones that are almost exclusively employed both in emulsion and in bath plates. These substances, when in even very dilute solution, present an intense color, and are dye-stuffs of the highest grade.

Whether used in emulsion or for bathing, the quantity of the substance employed is exceedingly minute. Both erythrosin and eosin are derivatives of

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fluorescin, which in turn is a derivative of coal tar. They have a somewhat complex chemical composition, one of them containing iodine and the other bromine. If a dilute solution of either erythrosin or eosin be brought in contact with a small quantity of nitrate of silver, the haloids separate and are replaced by silver, which enters into combination with the remaining elements of the dye-stuff. This gives us two new substances, known as erythrosin-silver and eosin-silver. These bodies are insoluble in water, but if a little ammonia be added they immediately go into solution, with a brilliant red or reddish-yellow color.

These silver compounds are also in use, and we thus have four substances—erythrosin, eosin, erythrosin-silver and eosin-silver—one or the other of which enters into the composition of ninety-nine one-hundredths of all so-called ortho-chromatic plates, whether of the commercial or domestic variety. Almost all of the commercial ortho-plates made in England, France and Germany are made with eosin-silver, which, for reasons that will be given later, I consider greatly inferior to the plain eosin, without silver, especially for landscape work.

This special method of preparation, however, is protected by patent in the countries above named, and the proprietors of the patents spare no pains to puff the merits of these plates and to depreciate the value of other methods of preparation.

I have experimented to a very considerable extent with both eosin-silver and erythrosin-silver, and also erythrosin-eosin-silver, and am of the decided opinion that the addition of silver is decidedly detrimental, the simple erythrosin or eosin giving better ortho-photic results, except when special yellow sensitiveness alone is sought for. As to this matter, I have fully satisfied myself by testing plates prepared in various ways on the solar spectrum, the continuous spectrum, on highly colored natural objects, as flowers, etc., and on pigments. In order to systematize this work, however, I have availed myself largely of an artificial or pigment spectrum prepared and given me by Mr. E. Bierstadt, who, as is well known, has for many years employed ortho-photography in a commercial way. This chart in polychrome displays the principal colors in the following order: violet, indigo, blue, green, yellow, orange and red, and alongside the red he has placed a strip of black.

Upon this color-chart I have exposed a considerable number of plates with results that will presently be shown.

Some of the published formulas for the preparation of ortho-photic plates are needlessly complicated, as for instance the one of Mallmann and Scolick, whose directions are substantially as follows: To a dilute solution of erythrosin add a dilute solution of nitrate of silver. This will produce a precipitate of erythrosin—silver. The fluid and precipitate are then thrown upon a filter, and after filtration the filter is washed a number of times with distilled water, in order to remove every trace of uncombined nitrate, in case that substance should have been added in excess.

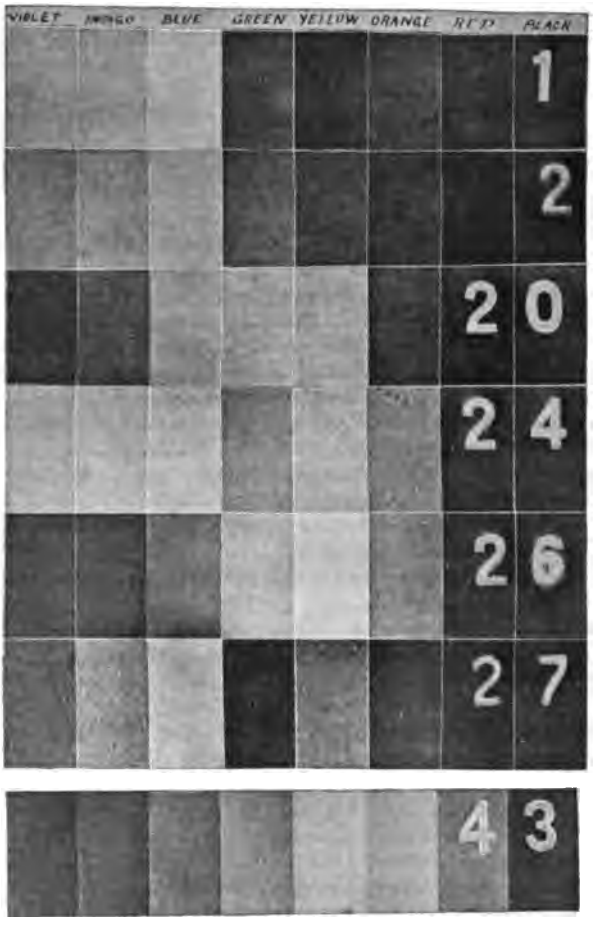
The precipitate is then dissolved in water containing about ten per cent. of ammonia. These operations must be conducted in the dark. I have simplified this process by first making a solution of erythrosin, containing about one part of the dye-stuff to two thousand parts of water. One grain of silver is now added for every 5½ grains of erythrosin. This will leave the erythrosin slightly in excess, and does no harm, while if the silver is in excess the plates will fog in development. A small quantity of ammonia is now added until the erythrosin-silver is brought into solution. This formula requires but a few minutes to prepare, while Mallmann and Scolick's takes several hours.

An eosin-silver bath may be made in the same way, except that about three and a half parts of silver-nitrate are used for every ten parts of eosin.

These solutions do not keep well, but in a few weeks become turbid and unfit for use. But as I do not like the results they give, I have abandoned them in favor of the plain erythrosin and eosin solutions. These plain solutions may be made by simply dissolving two grains of either dye-stuff in four ounces of water and then adding an equal quantity of alcohol. The solution is now

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carried into the dark room and a sufficient quantity is poured into a tray. An ordinary plate is now dipped into the prepared bath and left there for a couple of minutes with occasional rocking. It is then removed and raised up on end in a well-ventilated but absolutely dark closet or cabinet. The lower edge of the plate should rest on a strip of blotting paper. In ten minutes or so the plate is ready for use and may be put in the holders or may be kept in the closet for some hours until perfectly dry. Plates prepared in this manner possess, when fresh, the highest degree of excellence, but may rapidly deteriorate and be useless at the end of twenty-four hours. I think this is due to the varying quality of the erythrosin of commerce, as various samples that I have experimented with differed widely in their physical qualities and in their ortho-



photic behavior. I regret that I cannot inform you where a perfectly reliable sample of erythrosin may be obtained; but should you get one, cherish it carefully and part with it but grudgingly.

The eosin of commerce appears to be much more uniform in quality than erythrosin, and for that reason I would recommend its use especially in first experiments. There are, however, two varieties of eosin, known respectively as eosin Y (yellow) and eosin B (blue). I prefer the former. Eosin bathed plates have, in my hands, proved more durable than those prepared with erythrosin.

In order to secure ortho-photic results either on emulsion or bathed plates, it will be found necessary to use an accessory color-screen. This screen may be a piece of suitable yellow glass, or a piece of plain glass coated with yellow

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collodion. In the former case the glass should be a yellow pot-metal, not a flashed glass. It should be free from imperfections and the sides should be made plane-parallel and polished by an optician. A yellow collodionized glass may be prepared by first making a saturated tincture of turmeric. To this an equal volume of ether is added, and to this again gun-cotton in the proportion of 10 grains to each ounce of the mixture. A piece of clear glass is now taken and coated with the collodion. When dry it is ready for use, but the collodion surface should be protected by a coating of clear negative varnish.

With all the requisites for ortho-photographic studies at hand I would advise, as a first experiment, the testing of the color-chart with an ordinary commercial plate.

Let the color-chart be placed before the camera in such a way that it is evenly illuminated by good diffused daylight.

If the exposure is correct you will have the result shown on negative No. 1 (lantern slide here shown), in which the light values of the several colors as interpreted by the plain gelatino-bromide plate are :

In the first order of intensity	.....	Blue.
Second "	.....	Indigo and violet.
Fourth "	.....	Green and orange.
Sixth "	.....	Yellow.
Seventh "	.....	Red.

This result I have found constant with every brand of plates that I have tested.

If we now take another of the same plates and interpose the turmeric screen by fastening it to the front-board just behind the lens, and again expose, we will have a slightly different result, as shown on No. 2, as follows :

First order of intensity	.....	Blue.
Second "	.....	Indigo.
Third "	.....	Violet.
Fourth "	.....	Green, yellow and orange.
Seventh "	.....	Red.

We here observe that the effect of the screen has been to depress to a slight extent the intensity of the blue and violet and to increase the intensity of the yellow.

If we now take a plate from the same box and bathe it with an ortho-photizing solution of erythrosin without, however, employing the turmeric screen, we will get results identical with No. 1. In other words there will be no ortho-photic effect whatever, and the same is true with plates bathed with eosin or with a mixture of erythrosin and eosin.

Again, bathe a plate with the erythrosin solution, but this time use the turmeric screen, and the resulting negative will be the first to show ortho-photic, or as it is commonly called, ortho-chromatic results, as on negative No. 20, in which we find the light values to be:

First	.....	Blue, green and yellow.
Fourth	.....	Indigo and orange.
Sixth	.....	Violet and red.

The next experiment may be made by bathing a plate with an eosin-silver solution. When exposed without the screen the result is negative, that is, the same as in No. 1, no ortho-chromatic effect being discernable.

If, however, the turmeric screen be employed, the eosin-silver plate will give the results shown in No. 24, with the light values of the several colors as follows:

First	.....	Blue.
Second	.....	Indigo.
Third	.....	Violet and yellow.
Fifth	.....	Orange.
Sixth	.....	Green.
Seventh	.....	Red.

These two experiments are exceedingly interesting, from the fact that the first negatives the assertion that has been made that ortho-photic effects may

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be obtained without the use of a screen; while the second gives even less light value to the green than an ordinary plate does, which makes it a very undesirable plate for ordinary landscape and foliage, that is, if true ortho-photic effects are desired. If you try the plates, however, on landscapes you will find certain very remarkable effects, which have, I think, deceived most observers as to their true character. These effects I shall allude to again.

If we now abandon our bathed plates and try a Carbutt ortho-emulsion plate without a screen, we will get no ortho-photic result; but if we employ the turmeric screen we get a negative represented by No. 26. The light values given by this plate are:

First	Yellow.
Second	Green and orange.
Fourth	Blue.
Fifth	Violet, indigo and red.

These results are in striking contrast with, and are in fact almost the reverse of those obtained on plain plates. Another exposure was made with a Carbutt ortho-chromatic, using a screen of yellow flashed glass, and the light values shown in No. 27, as follows:

First	Blue.
Second	Indigo.
Third	Yellow.
Fourth	Violet.
Fifth	Green, orange and red.

If we now examine these various results side by side, so that they may all be seen at one time, we are immediately struck by the varying results, and ask ourselves which is the truest to nature and which will prove most acceptable as a landscape plate. There was no difficulty in discarding Nos. 1, 2, 24 and 27, leaving the choice between Nos. 20 and 26, with a personal predilection in favor of No. 20. I felt, however, unwilling to trust my own judgment in the matter, and availed myself of the kind offer of the well-known artist, Mr. James D. Smillie, who volunteered to estimate the light values in Mr. Bierstadt's color-chart, and to represent them in black, white and half tone. A copy of Mr. Smillie's chart was made on a plain plate, and is shown in No. 43, with the following results:

First	Yellow.
Second	Orange and green.
Fourth	Red and blue.
Sixth	Indigo.
Seventh	Violet.

These, it will be noticed, are very similar to those obtained on the Carbutt ortho-plate, as shown in No. 26. To Mr. Carbutt, then, the credit should be given of having produced the best plate for the reproduction of the light values of the principal pigments. For landscape work, however, it is possible that something better may yet be found.

We will now return to No. 24, and review our objection to the use of eosin-silver as an ortho-photizing solution, and again deny the statement that it gives ortho-photic results without a color screen. On near objects we have repeatedly failed to obtain these results, getting nothing more than will be found in No. 1; and when we use the screen we get decided depression of the green, the full light value of which it is most important to secure in most landscape work. What basis, then, is there for the preference which some give to this method of preparation, and what has led them to declare that ortho-photic results are thus obtained? An answer to these questions will be suggested if we make a careful study of the pictures which illustrate No. 375 of Vogel's *Photographische Mittheilungen*, a copy of which I now throw upon the screen. We here have two pictures of a little Bavarian village, the upper one taken on a plain plate and the lower one on an eosin-silver plate used without a color screen. The common features of these two pictures are a plain in the foreground, a few houses and a row of trees in the middle ground and a line of mountains in the distance. Very few persons would hesitate a moment in their choice between them,

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and in an instant would pronounce the lower one, the eosin-silver, the better of the two. The difference between the two pictures is certainly very striking, and the almost universal verdict would be that the claims made in behalf of the eosine-silver as an ortho-chromatic plate, *per se*, were substantiated.

If, however, we study these pictures with a view to analyzing the differences that exist between them, we find that the characteristic feature of the eosin-silver plate is the remarkable detail that is present and especially in the background. In the plain plate, the mountains are shrouded in haze, their very outlines being indistinct, while their irregularities or other peculiar features are indistinguishable. They look as distant mountains usually do when viewed with the eye. On the eosin-silver plate, however, these mountains are brought right up to the observer as if viewed with a telescope, and the wonderful detail they possess is as clearly delineated as they would to one who was very close to them and yet at an elevation that enabled him to see them in their entirety. The prominent characteristic of this plate, then, is its remarkable ability to delineate distant detail, a quality, however, which has no relation whatever to true ortho-chromatism; this increase of detail does not necessarily carry with it a true rendering of color values, which is the essence of ortho-photism.

It is the possession of this faculty of delineating detail that has led observers to hastily pronounce these plates ortho-chromatic. As yet no term has been proposed that properly defines this peculiar project. I therefor suggest the word *graphotelism*, as correctly describing the feature under consideration. The plates may, therefore, be called *graphotelic*. If we examine Dr. Vogel's pictures still further, and specially direct our attention to the row of trees in the middle ground, we will find, perhaps to our surprise, that from a strictly ortho-photic standpoint, the light value of the foliage is not as well represented in the eosin-silver as in even the plain plate, a result which is in strict conformity with the experiment illustrated by negative No. 24.

We must, then, in our study of these specially prepared plates, recognize the fact that there may be exhibited two entirely distinct qualities, namely, graphotelism and ortho-photism, which may exist separately, or be combined on the same plate, but which hereafter should not be confounded.

Turning now from the practical to the theoretical, we may ask: What is the cause that produces the graphotelic, and what the cause of the ortho-photic effects that may so easily be secured by the simple addition of an extremely minute quantity of certain foreign substances to the ordinary gelatino-bromide emulsion? As regards graphotelism, I feel myself at the moment to be absolutely without a clue to any adequate explanation.

The production of ortho-photism, however, admits of explanation, at least in part. It is generally claimed that it may be brought about by means of a certain limited number of highly colored substances, *e.g.*, erythrosin, eosin, etc. Second, it is asserted that these substances, when examined in solution with a spectroscope, must be capable of exhibiting absorption bands. Third, it is asserted that the position of these absorption bands on the spectrum will correspond with the special ortho-photism impressed on the plate. *Per contra*, it may be asserted that many highly colored substances, whose solutions exhibit marked absorption bands, fail to influence the plate as regards a truer rendering of the light values of the several colors, *e.g.*, carmine and fuchsin. Second, erythrosin and eosin, although different in color, appear to produce substantially the same results on the plate.

It has been further shown by experimenters that an emulsion may be highly colored with one of these substances, and then washed until the last trace of color disappears, and yet it will still exhibit ortho-photic properties. This led me to suspect that color was not essential to the process; in other words, that it was not necessary to use a dye-stuff. Such being the case, we must seek for some other quality which these two bodies possess in common, and which is not an essential accompaniment of color. We find this in their common property of fluorescence.

We may further recollect that chlorophyll, used by Ives, is also a markedly

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fluorescent body, while carmine and fuchsin, both highly colored and giving absorption bands, are not fluorescent and do not ortho-photize. These facts appeared to warrant the induction that the peculiar effects we are studying were related in some way to fluorescence, and led me to experiment with fluorescent but colorless solutions in order to test the validity of the induction. To this end, I bathed an ordinary plate with a dilute solution of nitrate of uranium, and made an exposure, using a turmeric screen, on Bierstadt's color-chart. The result was a negative identical with those obtained with the aid of erythrosin and eosin, and represented by negative No. 20. Another plate was bathed with a solution of æsculin, and gave similar results; while a third, bathed with a solution of sulphate of quinine, responded in the same manner.

The possibility, therefore, of obtaining ortho-photic results with solutions which were not dye-stuffs, and which did not give absorption bands, was thus clearly demonstrated.

Shortly after the above-mentioned experiments were made, I met with an article by Mr. C. Schiendl, of Vienna, and published in the *American Annual of Photography* for 1888. In this article Schiendl says: "I have finally found a large number of colorless substances, as such not being able to give any absorption band at all, but still powerful sensitizers for certain parts of the spectrum (atropia, brucia, quinia, æsculine, salicine, etc.)." From this it appears that Schiendl had already anticipated my own observations, so far as practical results were concerned, and I here desire to give him the credit that is his due.

For bathing plates I used a solution containing one part of æsculin to five hundred parts each of alcohol and distilled water. Whether this substance would act equally well when incorporated with the emulsion before coating remained to be seen. I accordingly sent a small quantity of æsculin to Mr. Carbutt, without informing him as to what it was. He added it to an ordinary emulsion and tested the results, sending me the following report: "In early summer it ought to yield some of the finest landscape effects ever yet secured." He states, however, that the æsculin emulsion, tested with a sensitometer plate, was a trifle slower than an emulsion prepared at the same time, but ortho-chromotized in his usual way.

Ortho-photography is in its infancy. Its growth, however, has been too much hampered by untenable theories, and its practice has been surrounded by imaginary difficulties; and if this paper will lead you to experiment a little in the directions indicated, I feel sure you will give ortho-photic plates the preference for most kinds of work, and a year from now will be able to show landscape negatives that will surprise those who are only familiar with the results that are attainable on ordinary plates.

I trust that on a future occasion I may have an opportunity of continuing with you our studies in this most fascinating department of our art.

THE LAW AND PHOTOGRAPHY.

BY MR. MORRIS COOPER.

(Read before the Photographic Section of the American Institute.)

WERE that venerable master of the law, Sir Matthew Hale, still among the blessed living, with what curious feelings would he not receive an invitation to hear a paper read on "The Law and Photography." In the exercise of a wise discretion, he might prefer to remain away altogether; but if he came, you may be sure that he would take a front seat, and woe to the presumptuous meddler who should attempt to erect any new idols in the temple of justice. But the times have changed since one of the noblest and wisest of England's judges thought it fit to preside over witches' trials. The art, which in those days would surely have invited the attention of the courts in a very unpleasant fashion, however, has become the helpmate of the law, and in the service of justice is destined to reach a degree of usefulness limited only by the skill and capacity of the artists themselves.

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Until comparatively recent times, recorded history consisted of the doings of soldiers, priests and politicians; may we not hope, however, that in the history of the future, the man or woman who can relieve his or her fellows from useless drudgery, give them better food to eat, warmer clothes to wear, sweeter surroundings to live in—in a word, make this earthly life more human, and therefore more humane, will receive a place at least equally honorable with those whom the world has hitherto been pleased to call its heroes? I venture the opinion that the man, or probably woman, who first used soap and taught others how to use it, conferred as great a benefit on the human race, if not much greater, than the boldest warrior that ever lived, though the latter's deeds may have been sung in a hundred Iliads. A few inventions during the latter end of the preceding and in the early part of the present century, and behold! not only a revolution in the industrial world, but almost a new civilization. The tales of the Arabian Nights are indeed a childish affair compared with the wonderful story of human progress in the present age. It is not my purpose to tell this fascinating story tonight, but in the consideration of the subject before us, to emphasize the fact that no one, not even the wildest dreamer, can foretell the uses to which an industrial discovery or invention may eventually be put. It is said that the Bible and Shakespeare have most powerfully affected the Anglo-Saxon race, because they have been so absorbed by that race as to have become a part of its mental habit. Has any one ever reflected how great an influence in the mental make-up of the same race its great mechanical inventions have played? To-day, our thinking, living, love-making, marrying, church-going, and even dying, pre-suppose railroads, printing, steam, applied to a thousand forms of industry, and numberless inventions, processes and discoveries. Simply remember that there was a time when none of these were known, and you can at once see what a part they must have played in the development of the human mind. Not one of the well-known inventions but has introduced a whole series of new problems and new relations, requiring re-statement and re-arrangement from time to time. Of the art of photography it may justly be said that its ways are "ways of peace." Unlike most other great arts, it is not applied to the destruction of life or property. Whether its paths are "paths of pleasantness," you, who are so thoroughly familiar with its technical details, are the best judges. To the courts of justice we must look for authoritative expressions upon the questions to which the art has given rise in commerce and society. I propose this evening to discuss some of the problems relating to photography which, in one way or another, have received the attention of the courts.

Let me say at the outset that the law moves with somewhat measured and cautious steps. This is but natural when we remember that the perfection which the law may have attained in any community, is simply an index to the development of that community. More accurately speaking, it is a mirror, in which all the intricacies and complexities of society are seen reflected. At the threshold of our investigation, let us consider

The Right to Photograph at All

On this question there is as yet very little judicial opinion. Clearly, every one who sees fit may make pictures of natural scenery. The sky, the ocean, the forests and the hills are no man's property. So a person could not be prevented from taking pictures of buildings erected upon land, provided he could get his view without going upon private property. There are objects, however, which cannot be photographed without the consent of the owner; that is to say, conceding an abstract right to photograph, a publication of the pictures or even of the negatives, and a publication would be complete by exhibiting them to a single person other than the one who took them, would be unauthorized. Suppose the rejected suitor of the fair Amanda, by means of a detective camera, succeeds in obtaining a picture of his adored one in the very act of being kissed by his hated rival. Would he be allowed to exhibit such a picture? We think that no photograph exposing others to scorn, disgrace, humiliation or contempt would be tolerated. The fact that the photograph depicted a scene which actually took

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place would be no excuse; on the contrary, that very fact would be all the more reason for not countenancing so ungallant a proceeding. Works in which a lawful copyright subsists cannot be photographed without permission. Thus photographs cannot be taken of paintings, drawings or engravings without consent. An interesting litigation illustrating this phase of the subject arose out of the picture called "The Death of Chatterton." Henry Wallis, the artist of this famous painting, sold it to a gentleman who, for a valuable consideration, agreed to sell to one Robert Turner the sole right to make and publish an engraving of the picture, and to exhibit it for short periods at any of the principal towns in Great Britain and Ireland. in order that Turner might obtain subscribers and otherwise derive profit. The picture being thus exhibited by Turner, one James Robinson arranged in his own studio a group which bore an exact resemblance to the picture, and took photographs for the stereoscope, colored them so as to correspond with the picture and sold them. What did Turner do? Let Robinson have it all his own way and spoil his anticipated profits? Well, not much; he was not constructed that way. He obtained an injunction against Mr. Robinson and the court sustained him. This brings us to another very interesting query.

Who owns the property in a photographic portrait, the sitter or the photographer? This point has been several times discussed in the public journals, but only once, as far as I can ascertain, in court. One able writer took the view that the property was vested in the artist and consequently that he could multiply and sell copies at will. Other able writers have combatted this notion and declare that the right to multiply and distribute copies of the picture belongs to the sitter. The only actual decision which I have seen reported, was given in the New York *Herald* of January 6, 1889, in the form of an editorial. Here it is: "Mrs. Pollard sat for her photograph at the gallery of the photographic company. Subsequently she learned that the company had prepared copies for Christmas cards, and was offering them for sale. She thereupon applied for an injunction to restrain this liberty. The company contended that the negative was their property, and that they had a right to print copies from it for sale. Mr. Justice North decides that a photographer has no such right unless he is expressly or by clear implication authorized to do so by the sitter. He accordingly granted the injunction. Here are the reasons: The object for which a photographer is employed and paid is to supply his customer with the required number of printed photographs of a given subject. For this purpose the negative is taken by the photographer on glass, and from this negative copies can be printed in much larger numbers than are generally required by the customer. The customer who sits for the negative thus puts the power of reproducing the object in the hands of the photographer, and in my opinion the photographer who uses the negative to produce other copies for his own use without authority, is abusing the power confidentially placed in his hands merely for the purpose of supplying the customer. And further, I hold that the bargain between the customer and photographer includes by implication an agreement that the prints taken from the negative are to be appropriated to the use of the customer only."

This decision, it seems to me, expresses the right view upon the subject. A woman's face is her fortune, and why a photographer should, without her permission, be allowed to distribute her photographs is difficult to understand. The mere fact that the photographer owns the negative, and has in his power the means of doing the injury, no more gives him the right to do so than the fact that a printer owns the type from which a book has been printed, affords the latter to multiply copies of the book without the author's permission.

Allied to this part of the subject is the question of

Copyright in Photographs.

Under the American statute of 1861, which provided that any person or persons, being a citizen or citizens of the United States or resident therein, who should invent, design, etch, engrave, work, or cause to be engraved, etched or

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worked, from his own design, any print or engraving, and the executors, etc., of such persons should have the sole right of printing, publishing and vending such print, cut or engraving, in whole or in part for the term of twenty-eight years from the time of recording the title thereof, etc., it was decided that no copyright was conferred in photographs, on the ground that photography was not a method of printing within the spirit of the law. In 1865, however, Congress extended the copyright laws to embrace photographs and negatives. Under the present Act, the Law of July 8, 1870 (U. S. R. S., Sec. 4952), any citizen of the United States, or residing therein, who is the author, inventor, designer or proprietor of a photograph or negative thereof, may obtain copyright therein. The term of years for which copyright may be granted is twenty-eight, with a renewal, on complying with certain conditions, of fourteen years more. The matter is in charge of the Librarian of Congress. In a suit brought by Mr. Sarony against a lithographing company for infringement of copyright, one of the questions to be decided was, Has Congress the constitutional power to confer copyright in photographs? The facts were that Mr. Sarony, under an agreement about the month of January, 1882, with Oscar Wilde, made a photograph of that person, which he designated "Oscar Wilde, No. 18." The defendant copied the photographs by means of chromo-lithography. It was contended in court that a photograph was not a writing nor the production of an author, but the court sustained the power of Congress to give copyright in photographs, making it, however, a criterion that the photograph should be the embodiment of original conception, and intellectual production. The claimant, therefore, of a copyright in a photograph under American law, must, in case his right thereto is disputed, be prepared to show that this work, like that of a successful patentee, is a work of originality, intellectual production, thought and labor of his own. In the Sarony case it was shown in respect to the photograph in question that it was a useful, new, harmonious, characteristic and graceful picture, and that plaintiff made the same entirely from his own original mental conception, to which he gave visible form by posing Oscar Wilde in front of the camera, selecting and arranging the costume, draperies and other various accessories, arranging the subject so as to present graceful outlines, arranging and disposing the light and shade, suggesting and evoking the desired expression, and from such disposition, arrangement or representations, made entirely by plaintiff, he produced the picture in suit. The plaintiff succeeded in both the lower and higher courts.

An interesting case arose in England in 1883. The English statute allowed copyright to the "author" of an original photograph, for the term of the natural life of such author, and seven years after his death. The Australian Cricket Team being in England, the manager of Messrs. Nottage & Kennard, a firm of photographers called the London Stereoscopic & Photographic Company, by appointment with the team, directed an assistant to go and photograph them. This the assistant did; thereafter Nottage & Kennard in the usual way prepared and sold the photographs, having previously taken out copyright in their names as proprietors and authors. But the inevitable infringer was abroad. A Mr. Jackson pirated the photographs, and Nottage & Kennard endeavored by injunction to restrain him. This Jackson, however, must have been a good deal like our famous "Old Hickory," of solid and tough fiber. No injunction for him, indeed! He raised the ingenious point that Nottage & Kennard were not and could not be the authors of the photographs. And now the broad foreheads of the English judges were to be wrinkled in wrestling with the knotty problem of who is the author of a photograph. They did wrestle, and this is the result of their wrestling: Jackson bore off the palm. The author, the court held, was the person who took the picture, the person who was most nearly the effective cause of the representation when completed. Justice Field said: "The author of a photograph is the person who most effectively contributed to the result; that is, the person who directed his mind towards and superintended the particular arrangements which have actually resulted in the formation of the pictures; and who that person is, is a question of fact in each

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particular case." To show how the judges arrived at this judgment, let me quote from the opinion delivered in the case by Brett, Master of the Rolls. He said: "I confess I have the greatest difficulty in construing this Act of Parliament. Persons who draw Acts of Parliament will sometimes use phrases that nobody else uses. I am speaking for myself only. As to the strangeness of the phraseology it says: 'the author' and so on 'of every original painting.' Whoever in ordinary life talks of the author of a painting? We talk of an artist or a painter. Then it says the author of a drawing. One can easily make out who is the author of a painting. The author of a painting is the man who paints it, and the author of a drawing is the man who draws it. Here we have the 'author' of a photograph. I should like to know whether the person who drew this Act of Parliament was clear in his mind as to who can be the author of a photograph. We understand that all the photographers have come to the conclusion that they are the authors of a photograph; that is, the people who own the machinery, the people who keep the shop, the people who pay the servants; that they are the only persons who are interested in the photograph at the time it is done; they think they are the authors of the photograph because the photograph is made and formed by the work of their mere servants. I cannot tell whether the person who drew this Act of Parliament had that idea or not; but I am not satisfied in my mind that he had, because it is full of difficulties. Here you have merely two gentlemen stated to be the authors. Can two people be the authors of a photograph? It is difficult to say; but if they are, for whose life is it to last—for the life of one of them or for the life of the longer liver, or what? They are the owners of everything about the place, the machinery and everything else, but they may live in Scotland and their photographic shop may be carried on in London. They may live two hundred miles off. Can they be called the authors of a photograph of which they know nothing? It is done by their servants; they may go to the shop once a week, and when they are there they may superintend the operations, though they seldom do, I suppose. At all events, they cannot superintend the taking of all the photographs in their shop. They may have half a dozen studios; they may superintend the taking of a photograph in one place, and they may have a skilled person who superintends the taking of photographs in another place. It would be obvious that they are the authors of a photograph where they are; but are they the authors of a photograph where they are not? Take this very case: It is not pretended that these gentlemen were at the place where the photograph was taken. They were either in London, or fifty miles, perhaps, the other side of London. They send a man to the place. The idea of photographing the Australian cricketers may have been the idea of one of these gentlemen, and he, if he saw the other, may have put it into the head of that other. The man who went was the man who took the photograph. What had he to do? He had to arrange the group, to put them in the right position and the right focus. But he does not do it at all, because there is another man who gets the plate ready, I suppose; and there is another man who, when the thing is ready, takes the cap off. Neither of them forms the picture, because after all, that is done by the sun. As I say, I wonder whether the gentleman who drew this Act of Parliament was clear in his own mind. I do not think he was, and confess I cannot myself be very clear about it. All I can do is to see who is the person who most nearly answers the description of the other things, or the author of a painting, or the author of a drawing. All I can say is, it is not the man who simply had the idea of a picture, because the proprietor may say, 'You go and draw Mrs. So-and-so, with a dog at her feet, and holding a flower in one hand.' He may be two miles away from the place, and he may have given the instructions by letter. The nearest I can come to it is, that it is the person who effectively is as near as he can be the cause of the picture which is produced—that is, the person who has superintended the arrangement, who has actually formed the picture by putting the people into position, and arranging the place in which the people are to be. Although he may only have done it by standing in the room and giving orders about it,

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still it is his mind and action, so far as anybody's mind and action are concerned, which are the effective cause of the picture, such as it is, when it is produced. Therefore, it will be a question in every case who that man is. That would be a question of evidence. That would be what my learned brother would call a question of fact. We have not to say in this case who was that man. I suppose it was the principal who was sent down to the place. At all events, it was neither of these two gentlemen who are described as authors, and it was certainly not both of them. Therefore the author here is wrongfully described, and the registration is bad and the copyright does not exist."

(*To be continued.*)

COLLODIO-BROMIDE EMULSIONS.

BY F. C. BEACH.

[Read before the Society of Amateur Photographers of New York.]

(*Continued.*)

Mr. L. C. Laudy, of the American Museum of Natural History, Central Park, New York, a well-known worker in the collodion processes, has at my request kindly given me a formula which he obtained from Mr. Newton, and which he says at the time it was used they kept secret.

He says they regarded Mr. Newton in those days as the "shining light" in this country on collodion emulsions. The formula is very practical and gave beautiful results, and all looked for a great future in collodion emulsions, until one day gelatine emulsions appeared and the glory of the beautiful collodio-emulsion departed. The following are the particulars as given by Mr. Laudy:

For Newton's emulsions, use Hance's delicate cream cotton.

BROMIDE EMULSION.—Formula for 1 ounce.

Silver nitrate 18 grains to the ounce. First dissolve in ten drops of water, then add five drops nitric acid for each ounce of solution, then add half an ounce of alcohol, in which is dissolved 12 grains bromide cadmium; then add 6 grains of cotton; shake well and add half an ounce of ether; let it stand twelve hours, then add 4 grains chloride calcium.

BROMO-IODIDE EMULSION.—Formula for 2 ounces.

Silver nitrate (crystals) 30 grains, dissolved in twenty drops of warm water, then add ten drops nitric acid.

Alcohol	1 ounce.
Bromide cadmium	18 grains.
Iodide ammonium	2 "
When these are dissolved add cotton	12 "

then add the silver solution and shake well; then add 1 ounce of ether and let it stand twenty-four hours; then add 8 grains of chloride cobalt, dissolved in a little alcohol. If the iodide is not used, let the amount of silver be 28 grains, and add the chloride cobalt after the emulsion has stood for sixteen or eighteen hours. Plates thus made with this emulsion may be at once exposed in the camera after coating and be developed with the following developer:

Make a saturated solution of neutral oxalate of potash in water, then add to each ounce 15 grains of pulverized protosulphate of iron, and lastly, just enough citric acid to the solution to turn litmus paper red.

But if the plates are to be preserved in a dry state they should be put in a special solution made as follows, and called

JAPAN TEA PRESERVATIVE.

Saturated solution Japan tea in alcohol	1 ounce.
Water	16 ounces.

The tea solution is prepared by soaking 1 ounce of Japan tea in 6 ounces of alcohol; let it stand until a strong tincture of tea is made, then add 1 ounce of the tincture to 16 ounces of water. Or better, make a saturated tincture of tea in

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alcohol, and add two or three drops to each ounce of bromide emulsion. After coating, simply wash the plates in one or two changes of water until the oily lines disappear and rear up to dry.

To make the plate more sensitive, when it is desired to expose it in the camera, while wet flow over the surface the following accelerator:

Sal soda	180 grains.
Bromide of ammonium	2 "
Water	12 ounces.

Mr. Laudy has also sent me a copy of Mr. Newton's printed directions concerning the use and manipulations of the plates. His developer, called a stock solution, is prepared as follows:

Yellow prussiate potash	1 ounce.
Carbonate of soda	100 grains.
Bromide of ammonium	15 "
Water	10 ounces.

After exposure the plate is washed under the tap a few moments to remove the preservative, then the developer, consisting of half an ounce of the above solution, to which 4 grains of dry pyro has been added, is poured on. The image soon appears, and the development is accelerated by the air by frequently pouring the developer off and on. If more intensity is desired add to the developer a little more pyro. Fix in hypo solution, 1 ounce of hypo to 4 ounces of water; give the plate a good washing and set up to dry. When dry, varnish the plate to protect the film.

Dr. J. J. Higgins tells me the formula he used successfully is that which was employed by Mr. Albert Levy, and known as Levy's emulsion.

In the *Photographic Times* of September 4, 1885, Mr. Levy thus describes his method of working.

I will explain the manipulations in the way I think is the most practical, and by following them closely success will be certain; for 54 ounces of emulsion mix the following:

A.

Bromide of cadmium	648 grains.
Alcohol (absolute)	18 ounces.
Iodide of ammonium	161 grains.
Cotton (Hance's cream)	586 "
Ether (concentrated)	27 ounces.

In another bottle:

B.

Nitrate of silver	600 grains.
Alcohol	9 ounces.
Nitric acid	270 drops.
Distilled water	360 "

Pour A into B, and leave exactly ten hours, then add 99 grains of green chloride of copper.

The excellent flowing qualities of my emulsion, its sensitiveness, etc., I ascribe, first, to the minimum quantity of water I put into it, and also to the correct measurement and timing.

First.—I would advise to weigh out the required quantity of bromide of cadmium, and then desiccate this in a porcelain capsule on a gentle heat. It will first soften and boil, and the heat must be applied so that the bubbles do not blow out any of it and change the quantity, however small the loss, as every particle is closely calculated. Then it will form in a lump (I forgot to say that during this evaporation the bromide should continually be stirred with a strip of glass, so as to prevent its adhering and consequent burning), when, by continuous stirring, it will granulate, and this should be pursued long enough, until the granulation is fine enough and powdery, showing that all the dampness has gone.

This powder, well scraped out of the capsule, is put into one-half of the given quantity of alcohol and shaken until well dissolved. The iodide of ammonium is now added. This should be of a light yellow color. When this is melted,

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add to it the cotton and shake well, after which the ether is added, and another good shaking given.

This first operation in one of the bottles previously well cleaned. It is well to have the bottles about twice as large as necessary, as it allows better shaking, and, of course, mixing.

In the second bottle put the nitrate of silver, and the water (which must be counted by actual drops, and not measured), the actual amount of which must dissolve the silver; but as it will not do it while cold, it must be gently heated until the required result, when the second half of the alcohol is added. On a small quantity the addition of the alcohol leaves the solution transparent, but on a larger quantity the silver is precipitated. This does not in any way affect the result.

All of these manipulations may be performed in full daylight, but the subsequent ones must be done in the dark room.

After having well shaken the silver solution, add to this the collodion in small quantities of 4 drams to an ounce at a time; shake very well at every new addition, until all is transferred.

The emulsion is now almost finished, and should be shaken occasionally during ten hours (exactly, neither more nor less), when the chloride of copper is added, giving a thorough shaking again, so as to dissolve it well, and also for other reasons.

Before adding the chloride of copper it must be put in a capsule and well evaporated. This can be easily perceived by the color, which must be thoroughly brown when fully dried. Contrary to the bromide, the chloride should and must be weighed after the drying process is gone through. I may add that the dried chloride will keep very well in that condition if placed in a well-closed glass stoppered bottle. If it gets green it must be again evaporated.

Filtering is now advisable through Japanese filtering paper or cotton, when the emulsion is finished. The preservative is composed as follows. Preservative or 44 ounces:

Tincture nux vomica	100 drams.
Tincture scillæ	42 "
Tincture cochineal	120 "
Honey	20 ounces.
Acetic acid	20 drams.

Of the above take 22 drams and add 64 ounces of water. After coating the plate, allow the film to set well, and then rinse in water before applying the preservative.

On reference of the above to Dr. Higgins, to whom through a perfected formula the honor of the commercial introduction of dry plates in this country is due, he endorses it as in the main correct; the time for the introduction of the nitric acid and its effect, a very important matter, is however wanting, as also other details necessary to its successful making. These the doctor has promised to give, in a practical demonstration before our Society, of the art of emulsion-making, to the utmost minutia, so that any one with ease and certainty can make a reliable and satisfactory emulsion.

Dr. J. J. Higgins also gives me his formula for developing the above plates as follows:

Carbonate soda	½ pound.
Ammonium bromide	640 grains.
Honey	1 ounce.
Water	2 quarts.

The above is strong for extra cases. When diluted one-half it forms the usual normal developer.

To half an ounce of the above add a mustard spoonful of dry pyro previous to applying to the plate.

It will be observed in these various formulas that considerable restrainer is added to prevent fogging, which is quite different in the case of the gelatine plate. If the alkali and pyro are poured on a collodion plate without containing a

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restrainer, the film will darken almost instantly. Very little practice is required to obtain excellent results, and I hope the reviving of this subject may lead to further improvements, especially when it is noticed that collodio-emulsions for ortho-chromatic work is being agitated.

AMATEUR EMULSION MAKING.

BY E. H. LYON.

[Lecture delivered before the Boston Camera Club, December 10, 1888.]

WHAT a marvelous thing is the modern dry plate! What wonderful possibilities are contained within its creamy film! Does not the development of the latent image savor of the supernatural?

Our life is made up of images—home, wife, children, friends, town, country—and yet how imperfect are the images stored away by memory compared with those we may produce by the aid of photography! May we not call a dry plate a sort of portable memory?

I think the three inventions of modern times which associate themselves most closely with our inner lives are the telephone, the phonograph and the gelatine dry plate, the first bringing us far-distant human voice, the second embalming that voice, so we may reproduce it at will and the third preserving for us a visible image of the speaker and his surroundings.

A dry plate emulsion consists essentially of a finely divided precipitate of bromide of silver suspended in gelatine. This precipitate is formed by the addition of nitrate of silver to a solution of gelatine containing a soluble bromide, generally of an alkali metal, such as potassium, ammonia, sodium or lithium.

It is needless to say how extremely sensitive this precipitate is to light, but we do not know as yet why it is so. We only know that the molecule is capable of reduction in direct proportion to the extent of its bombardment by light waves. The making of a dry plate is not nearly so difficult an operation as many suppose. I consider the correct exposure and development of the plate the more difficult of the two. Of course, I am not speaking of the marvelously rapid plates of the regular manufacturers, whose carefully guarded secrets cover processes of considerable intricacy and nicety of manipulation. By the formula I will demonstrate to you this evening you can easily make plates that will give excellent negatives with an exposure of two seconds, stop F. 45, upon an open landscape in June. Good drop shutter work may also be done with them. I am convinced by long experiment that the emulsion should be made with a view to the work for which it is intended and that it is an impossibility to make a really good "all around" plate. I have frequently noticed that a plate that will give good results in the studio will be supersensitive to diffused light on landscape work, causing distant objects to disappear in fog in order to get sufficient exposure in the foreground. I often hear it said that commercial plates all have chemical fog, that the shadows are not clear glass, and yet you will notice that any part of the plate that has not been exposed at all to light will be clear glass. What ordinarily appears like chemical fog is really the effect of diffused light upon the gelatine. This will frequently occur when the light has been too weak or the exposure too short for direct reflections from objects to impress themselves upon the plates. You may try an interesting experiment to prove this by opening the door of your dark room so that a little diffused white light may fall upon

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half of a dry plate, place in weak developer for a few moments and fix. Exposed half will present a mealy, ground glass appearance without apparent reduction of silver, while the unexposed half of the plate will be clear glass. Therefore a good landscape plate must not be too sensitive to diffused light, but it should be highly sensitive to reflected light from different objects and give a good rendering of color values. For general landscape work I prefer a pure bromide to an iodo-bromide emulsion. For interiors and portraiture, a small percentage of iodine is indispensable, as it increases the color sensitiveness for yellow and red. Of course, my remarks apply largely to the ammonia process of dry plate making. I have experimented with nearly all the published formulas and find that the ammonia process is the most reliable and by far the simplest method which the amateur can attempt, although I find many who are in favor of the boiling process. There is much difference of opinion in regard to the use of iodine in emulsions. With pure bromide I find greater latitude of exposure. I have not found any gain in rapidity for landscape work to result from the addition of iodide in the ammonia process. If two plates are exposed in actions upon the same landscape, one pure bromide and the other iodo-bromide, they will be found to have correct time upon about the same section. It will be noticed that over-exposure on the pure bromide only increases density through a considerable range, while over-exposure on the iodo-bromide plates will quickly result in a flattening of the lights. I will explain what I mean by exposing the plate in sections. Mark a plate-holder slide in sections of a half inch and number them; put a plate in and expose the whole of it for one second; push the slide in half an inch and expose another second and so on, being careful not to jar the camera. On developing the plate, it will be seen at once which gives the clearest and best result. The correct exposure for that particular plate or emulsion will be equal to one of the short exposures on that section.

The mixing and digesting of an emulsion are the simplest parts; the troubles are likely to come after this, and are caused principally by the improper application of new gelatine We are likely to seal up the delicately poised molecule we have produced, rendering it insensitive and difficult to reduce. I will show you how to make an emulsion which, for simplicity and excellency of results in landscape work, I think it is unsurpassed by any of the rapid commercial plates. It is made by the ammonia process. As there is a good reason for each step in the process, the directions given should be closely adhered to. Here is the formula :

A.

Ammonium bromide	30 grains.
Nelson's No. 1 gelatine	5 "
Distilled water	4 drams.

B.

Nitrate of silver	45 grains.
Distilled water	4 drams.

Precipitate and redissolve with strong ammonia.

C.

Hard gelatine (Heinrich's or Winterthur's)	30 grains.

This is the way I mix the emulsion. Place the hard gelatine C in sufficient distilled water to cover it, and set aside to swell for one hour. Now

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take a wide-mouthed 8-ounce bottle and put in 4 drams of distilled water and 30 grains of bromide of ammonia; let this dissolve, and then put in 5 grains of Nelson's No. 1 gelatine, taking care that the solution covers it. Set this A solution aside to swell for one-half hour.

To prepare solution B, weigh 45 grains of nitrate of silver, and dissolve in 4 drams of distilled water; add, drop by drop, enough strong ammonia to just redissolve the dark brown precipitate of ammonia-nitrate of silver. If an excess of ammonia has been added, it should be allowed to pass off into the air before the solution is used. The solution should have only a faint odor of free ammonia. Now pour the excess of water from the hard gelatine C and dissolve in a covered beaker or tumbler, at 120 degrees F., in the water-bath. Then place the bottle containing the bromized gelatine in the water-bath and dissolve at 100 degrees F. The bottle should be provided with two corks, in one of which a small glass syringe is fitted. All operations up to this point may be conducted in white light. We must now work by the light of the ruby lamp, which may also serve to keep the water-bath warm during digestion. Let the A and C solutions fall to the temperature of the room, and add B to A, a little at a time, by means of a syringe, at the same time shaking the bottle. Now pour in C, thoroughly mix and place the bottle, which has been closed by cork No. 2, in the water-bath at 100 degrees F., to digest for one hour. It should be shaken frequently during that time to prevent the formation of a coarse precipitate. A thermometer should be the inseparable companion of the bottle in the ammonia process, and the temperature closely watched. A cheap thermometer without a case serves the purpose. The lower portion of it is wrapped with two thickness of flannel, and a strong rubber band fastens it to the outside of the bottle. Do not allow the temperature to rise above 100 degrees F. during the digestion. This is very important, for at high temperatures ammonia is destructive to soft gelatine and it appears to convert hard gelatine into a leathery compound which retards or entirely prevents the subsequent ripening of the emulsion. We may allow ourselves plenty of non-actinic light while mixing and during digestion. After washing and during the coating, we should be more careful. The process of digestion may be watched by placing a drop of emulsion upon a piece of glass from time to time and examining it by transmitted light. When first mixed it will have a salmon color, changing to blue and finally to a blue-green. It should now be poured into a shallow dish to cool. This will take about an hour. When firmly set, take it up with a silver spoon and squeeze through a piece of embroidery canvass into a dish of cold water. A large yellow bowl is useful for this, as the shredded emulsion may be readily seen by ruby light as it settles to the bottom.

Keep the shreds in motion with a glass rod; allow them to settle every few minutes, and pour off the water, replacing it by fresh. Repeat this operation seven or eight times during twenty minutes and the washing will be quite complete.

Pour off as much as possible of the last wash water and add one-half ounce of alcohol to each ounce of emulsion. Let the shreds stand in this dilute alcohol for some minutes, then pour the whole upon a piece of soft muslin stretched across a deep dish or bowl; gather up the corners of the muslin and squeeze the shreds as dry as possible. Now spread the muslin upon the bottom

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of the washing dish, and with a silver spoon gather up the shreds and place in a cup or glass and remelt at 100 degrees F. Then set away in a cool place to ripen for from one to five days. The addition of alcohol to the last wash water accelerates the ripening process.

(*To be continued.*)

OUR ILLUSTRATION.

THE picture with which we illustrate this issue of the BULLETIN marks an era in photographic progress. For many years, ever since Scott-Archer used collodion, glass plates have held undeniable sway as a support for the sensitive surface in photography. The picture that forms the frontispiece of this number of our journal was made from a negative that is not glass nor yet paper; but a transparent medium, not much thicker than heavy note paper, almost as transparent as glass, and from its extreme thinness it has very little weight.

It can be used as readily as a glass plate, being quite rigid; it is placed in the ordinary plate-holders with a card behind it to press it forward into position; it is exposed, developed, fixed, washed and dried as readily as a glass plate. From the result we give in our illustration, it will be seen that there is entire freedom from grain, and it is beyond question a perfect substitute for glass in photography.

The picture is a view of the house of Mr. F. J. Griffiths, at Roseville, Newark, N. J., the negative being developed by Mr. E. B. Barker, using Anthony's hydroquinone developer.

LAST year I entered my name on your list as a subscriber to your valuable BULLETIN, sending one dollar for trial, and I have found it so useful and its contents of reading matter so choice in selection, that I have considered it in my favor to still remain a subscriber. BENJ. L. NOYES.

I CANNOT do without it; I cannot tell you how much I was pleased with the BULLETIN this year, and you improve it every year. EDWARD LONG.

THIS is now my fifth year as a subscriber to the BULLETIN. I am well pleased with it. A. L. COLTON.

I AM more than pleased with the BULLETIN, and I thank you for sending it so promptly, for I often find in its pages something of real value to me in my everyday work. MRS. MARY A. CROSS.

I INTEND to take the BULLETIN right along, as I cannot get along without it, for I look forward to it as I do to my meals. J. M. STROCK.

CANNOT keep house or photograph without the BULLETIN. It is the acme of all photographic journals and the focus of information for the beautiful art. W. D. LINN.

I WOULD recommend all who wish to do good to subscribe for the BULLETIN, to pay for it, to read it, and to think over what they read. A. J. PERKINS.

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ANTHONY'S
Photographic Bulletin.

EDITED BY

Prof. C. F. CHANDLER, Ph.D., LL.D.,
Aided by ARTHUR H. ELLIOTT, Ph.D., F.C.S.
and a corps of practical assistants.

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E. & H. T. ANTHONY & CO., Publishers.

PHOTOGRAPHIC SOCIETY OF CHICAGO.

AN adjourned meeting of the Photographic Society of Chicago was held at No. 96 State street, January 16th. Professor Hough presided and C. Gentile acted as Secretary.

The following officers were elected for the ensuing year: President, Judge J. B. Bradwell; First Vice-President, Professor G. W. Hough; Second Vice-President, C. F. Charles; Executive Committee, M. J. Steffens, George Kleine, and Frank Place; Treasurer, G. A. Douglas; Secretary, C. Gentile.

There was a long discussion affecting the proposed holding of an annual exhibition. It was agreed to hold such an exhibition here some time during the month of April. The exact time could not be agreed upon, as that depends largely upon the number of pictures that will be received and the hall in which they will be placed. An offer was received from the management of the Art Institute, tendering the use of three upper galleries. The offer will be further considered. It was decided to make the exhibition an international affair and to give prizes, medals and diplomas for the best exhibits. The newly-elected officers are to be the committee on exhibition. It is expected that the exhibition will be a very large affair, and that it will attract considerable attention. It was also decided to incorporate the society under the laws of the State of Illinois. There was a long discussion on the merits of magnesium flash-light; also on the merits of different developers, especially that of the new one, hydroquinone.

CHICAGO LANTERN SLIDE CLUB.

DECEMBER 18, 1888.

A LARGE and appreciative audience filled the club rooms to enjoy the treat assured by the call stating that the Interchange set from the Philadelphia Society was to be shown. Owing to this fact, *President* NICOL announced that the Executive Committee had decided to omit the general business, except the admission of new members. The following names were added to the roll by unanimous vote: Mr. and Mrs. W. C. Comstock, Mr. W. C. Dow, Mr. H. K. Hibben and Mr. E. W. Farnham. A fine double lantern sent to the club by the McIntosh Optical Company was lighted, the lights put out and upon an 8-foot screen appeared the first picture, one of those inimitable compositions by Mr. John Bartlett, entitled "Market Day."

This was followed by a few more by the same artist, child portraits in pretty combinations, all of which brought forth applause.

Following these were beautiful landscape views by Messrs. George Vaux, Jr., Mr. Pancoast, Robert S. Redfield, C. W. Millar and J. G. Bullock. Here the Secretary announced that there was a good collection of foreign views, and he had taken time to arrange them so as to give the members a little trip into France, Italy, Switzerland, Bavaria, Belgium and home *via* New England. Mr. Ellerslie Wallace had one of those beautiful views in the Garden of Versailles, Quaint Old Houses in Hildesheim, the Hotel Kaiserworth on Goslar. Then a beautiful view at Hospenthal and Andermat in the Alps. Messrs. T. N. Ely and W. A. Bullock had some very interesting views in Venice, nearly all taken with detective cameras.

Mr. George B. Wood's Negro in the Doorway, and Mr. Redfield's Victuals and Drink, Nos. 1 and 2, brought out a burst of laughter. Again our club has to thank the Philadelphia Society for as rare a treat among pictures as we have had since our organization.

W. A. MORSE,
Secretary.

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AMERICAN INSTITUTE—PHOTOGRAPHIC SECTION.

CLINTON HALL, 19 ASTOR PLACE, NEW YORK. REGULAR MEETING, JANUARY 16, 1889.

President H. J. NEWTON called the meeting to order and said: "The first business of the section is reports of committees."

The *Secretary* reported the receipt of the usual photographic papers and periodicals, all of which were duly acknowledged by the accustomed vote of thanks. The chairman of the Executive Committee reported that at the next regular meeting, February 5th, the section would be entertained by Dr. Milton J. Roberts on the subject of "Flash-light Photography in its Relation to Medicine and Surgery."

On the third Wednesday evening, February 20th, there would be an informal meeting of the section, to which all interested in technical photography were cordially invited. (All refreshments on this occasion will be provided by the institute.)

The subjects of the evening were then read as announced on the cards of invitation, and President Newton introduced Mr. Morris Cooper, of the New York Bar, as the first speaker of the evening, who spoke upon the subject of "The Law and Photography."

Mr. Cooper was listened to with marked interest and attention, and his inspirational and effective reading, in unison with the substance of the paper, drew from his auditors at its close a hearty and well-deserved vote of thanks.

Mr. F. C. BEACH, ex-President of the New York Society of Amateur Photographers, followed Mr. Cooper with a lantern exhibition, entitled "A Four-Mile Carriage Drive." He also exhibited a number of slides received from distinguished American and English amateurs, and thus gave his audience the opportunity of better judging the real merit of his own work. That this work was not lowered in the opinion of his auditors by this comparison, was manifest by their hearty applause, and by a unanimous vote of thanks. That Mr. Beach was mindful of the respect due to his audience was apparent by his thorough preparation and unique description of his work, thus demonstrating, unconsciously perhaps, the enhanced pleasure of a lantern exhibition, when every picture is duly and expertly described.

It might naturally be presumed that "A Four-Mile Carriage Drive" would be quickly over! And it no doubt would have been by one who has no eye for the sublime and beautiful in nature. But the artist may find, even in this short space, sufficient to occupy both hand and brain for as many days as are numbered in the year, and require to faithfully describe and portray these beauties an entire season of winter evenings, rather than one brief hour in a single night.

President NEWTON exhibited some three or four slides illustrative of what can be accomplished in the way of negative-making, even on the shortest and darkest days of the year, and thus demonstrated that the time had come when the amateur could no longer excuse his indisposition by affirming that the only time for viewing was on bright days and genial seasons of the year.

The exhibition was closed with a few choice slides contributed by Mr. A. D. Fiske, and a vote of thanks was tendered him for his expert and skillful management of the stereopticon.

The section, on motion, then adjourned.

BOSTON CAMERA CLUB.

A SPECIAL meeting of the club was held on Monday evening, the 21st inst., to witness a demonstration of the Reeves magnesium lamp.

There was a large attendance, and considerable interest was manifested.

Mr. Reeves exhibited a large number of photographs, interiors, groups and portraits, made with the lamp, which were very good and some of the groups extremely fine.

He then explained the construction of the lamp and the method of using, which is very simple.

The advantages claimed for it are absolute safety, absence of smoke, quickness of the flash, economy, the great breadth of the flame and consequent diffusion of light.

Mr. Reeves then proceeded, with the help of members, to make some portraits.

The first was made with one lamp, unscreened, about 8 feet from the sitter. The lens was a No. 2 Euryscope, large stop. On developing the picture, it was found to be decidedly over-exposed. A second, exposed under similar conditions, but screened, was developed into a well-exposed negative by the use of a hydroquinone developer. A third exposure was made with a double-view lens of 12-inch focus, stop *f*-16. This was a large head on a 5 x 8 plate, and was a splendid negative, fully timed, and with all the qualities of a daylight picture.

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The screen used in the second and third exposures was a piece of tracing cloth hung at an angle of about 45 degrees and 3 feet from the lamp. The demonstration was very successful and of great interest to the large company present.

E. F. WILDER,
Secretary.

A COOK-BOOK, A FAMOUS PHOTOGRAPHER, AND A BOSTON HOUSEWIFE.

SOME time ago our good friend, Mr. J. F. Ryder, of Cleveland, sent us a little cook-book, which was partly an advertising device and partly a very useful little compendium of receipts for the housewife. Mr. Ryder also sent a copy of the same volume to Mrs. Conly, the good wife of the well-known Boston photographer. The extracts from her letters which we give below are such thoroughly enjoyable bits of household philosophy that we thought they would interest those of our readers who are fortunate enough to be acquainted with the lady who penned them, she having kindly given her consent to their publication. To understand the situation it must be noted that Mr. Conly was assistant to Mr. Ryder many years ago and the friendship then formed is still strong between the families.

In her letter acknowledging the receipt of the cook-book, Mrs. Conly says: "Mr. Ryder, you are the biggest friend in the West. I have an only brother in the West, but he never sent me a cook-book. He might send me ducks or grouse or some kind of wild hens, but it remains for you to fill my heart with gratitude by this gift of a book. * * * I have a drawer full of cuttings from papers, all cooking formulas, and the moment I get an hour off or a Sunday at home, I cook and have a picnic. I ought to be a regular kitchen girl, but I have to drop my lofty ambition and stand behind a counter and say $8 a dozen like a parrot, instead of cooking up good things. * * * * Well, Mr. Ryder, I must be excused, for I want to read my new book. There isn't any use; I'm going to cook something on Sunday or die in the attempt. The last attack I had I made thirty-nine tumblers of jelly, and have sent it to the sick people. They say it is good, but sick people are often weak mentally. I am going to make a Christmas pudding, and I am crazy to get about it right away."

Mrs. Conly made some Christmas puddings and sent one to Mr. Ryder, with the advice: "If there isn't a competent doctor within easy running distance, you might have your regular medical adviser to dinner with you. I made one for my family, and if the journals come out with obituaries next month I will be the cause of it." Mr. Ryder says that he received the pudding and that it was "delicious to a dangerous degree."

When a lady as busy as Mrs. Conly can sit down and write so cheerfully about her household affairs, we think it should be an example to many others in a similar position. Lately she has been taking the place of the forewoman in Mr. Conly's studio, this latter lady having been sick for many weeks with typhoid fever. In this connection, Mrs. Conly complains that she cannot get a good girl to help her and remarks: "They don't seem to know that nice people need nice treatment."

The lady whose letters we have quoted from has always taken an active part in Mr. Conly's work, as can witness many letters we have received from her pen; and the success of Boston's well-known artist-photographer is probably due to the fact that he has such a good and happy helpmate. A man with a wife that is interested in his pursuits, and that can at the same time turn her attention to the cooking of a good dinner when necessary, is to be envied. For it is too true that the way to a busy man's heart is by a good dinner. Slippers and smoking-caps are pretty in their way, but a dinner well cooked, and the cook at the other end of the table, makes a man feel supremely happy.

Bibliography.

THE *Photographic News* Year-book of Photography comes to hand rather late this year, but it is filled with good things for the photographer. It has over two hundred pages of photographic information, including tables of societies, formulas, receipts and other useful memoranda.

AN INTRODUCTION TO THE PRACTICE OF PHOTOGRAPHY. By Chapman Jones, F. I.C., F.C.S. London: Iliffe & Son, Fleet street.

In spite of all that can be said to the contrary, a good chemist is the best man to write a book on photography. Such a writer is the author of the volume before us. It is practical, truthful, in that it is scientific, and therefore is thoroughly reliable. In the compass of two hundred and seventy odd pages the

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author discusses such topics as the chemical action of light, the nature of a number of photographic chemicals, the intensity of light, mirrors, lenses, color sensitiveness, cameras, stands, shutters, making negatives, developers, intensifiers, gelatine-bromide paper, collodion plates, silver and other printing, and also brief chapters on some photo-mechanical processes. Altogether the book is an admirable compendium of photographic practice.

DIE BROMSILBER-GELATINE. Dusseldorf: Dr. Paul E. Liesegang.

This is the sixth edition of this neat and practical little manual. In it the author discusses the history of the gelatine process; the making of emulsions; all the details with regard to the preparation of the glass plates; the development of the negative; the different kinds of developers; the fixing, washing and strengthening of the negative; the direct reproduction of pictures, and a host of other information, the result of practice from a worker in photography. The volume is a good one, and those of our readers who understand the German language will find it useful.

What Our Friends Would Like to Know.

N. B.—We cannot undertake to answer questions of a technical character except through the columns of the BULLETIN. *Correspondents will please remember this. No attention will be paid to anonymous communications.*

Q.—J. R. C. writes: Please tell me, through the columns of the BULLETIN, if there is a book entitled "Skylight and Dark Room"? If so, where can it be procured? The hydroquinone developer, in Dr. Vogel's letter in No. 24, gives French weights; what would the proportions be in English weights? I have been using Cramer dry plates; are they as good as the Stanley? Is it cheaper to make my own chloride of gold, as per formula of T. J. A. in BULLETIN No. 24, or get it dry already prepared?

A.—We do not know a book by the title you give. But you cannot do better than read the articles of Mr. Duchochois in the recent numbers of the BULLETIN; these discuss the subject quite thoroughly. In all foreign formulas, it is only necessary to remember that the gram is equal to 15.4 grains and the c.c. of water weighs one gram. The question about plates we do not care to answer; it would be too much like advertising. Both plates are good, but everyone cannot use them; it takes experience. Don't try to make gold chloride; the process is too troublesome; it is better to buy it dry.

Q.—J. F. L. writes: Will the BULLETIN please explain the illustrations of the Lick telescope? Are these two mountings for the 36-inch lens under different devices, making it necessary to transfer the lens from one to the other as the occasion requires?

A.—We do not understand that the Lick telescope has two mountings. The cuts given are from views with lenses of different angles, in order to show the whole instrument and also the details around the eyepiece end.

Q.—N. F. A. writes: Will you please answer through the BULLETIN what can be used to keep the albumen on the paper in place of silver or alcohol? Do not want to print on paper.

A.—Hold the paper over a jet of steam issuing from an opening that does not throw out drops of water. A flat, wide jet is best, and the paper must be moved rapidly and uniformly over it.

Q.—C. A. B. writes: I send you a piece of albumen paper that, after floating on a 60-grain bath one and a quarter minutes, has dark spots on it in various places and shapes. My bath is clear and apparently free from albumen; usually the second sheet floated is all right, but sometimes has teardrops. I use N. P. A. paper. My prints, after burnishing, seem to have a scum over them in the heavy shadows, and the whole picture seems muddy. And another thing that don't seem right: after fixing, the print looks grainy, as though the fiber was totally destroyed. What is the best method of ridding the bath of albumen? Please answer the above through the columns of the BULLETIN.

A.—Your trouble seems to be that a scum settles upon your bath. This may be almost imperceptible to the eye. To overcome the difficulty take a piece of clean filter paper, or blotting paper, and draw it over the surface of the bath before floating the albumen paper. To overcome the grain difficulty the paper should be hung in a damp atmosphere about twelve hours before floating, and should also be thoroughly fumed. To rid bath of albumen make it alkaline with ammonia, place it in sunlight until all albumen has precipitated, then boil, filter, neutralize with pure nitric acid, and if the strength is right, it is fit for use.

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A BRACE of swindlers have "worked" the good people of Hampden County out of hundreds of dollars by using the name of the well-known photographer, Chauncey L. Moore, of this city.

About two weeks ago a glib-tongued stranger came to town and applied to Mr. Moore for a position. Mr. Moore engaged the man to canvas the towns for him. He had 100 cards printed, called "special discount cards." Any person could procure one of the cards by paying fifty cents down. The cards entitled the purchaser to one dozen cabinet photographs at C. L. Moore's for $3.50, a considerable reduction from the usual price.

The man gave his name as J. G. Morse, of Boston. He was to start out last Thursday, but failed to do so. Mr. Moore's suspicions of the fellow were excited the following Friday. The stranger told too many lies to suit Mr. Moore, who is a decided enemy of dishonorable business men, so Mr. Moore took back the tickets and discharged the man.

Then the wily stranger went to the printing office of F. K. Williams & Co., where the cards were printed, and ordered several hundred cards in Mr. Moore's name. He secured the cards unknown to Mr. Moore and started out to "work" the towns.

Last Monday Mr. Moore heard from the stranger in this city; then in Brightwood, Chicopee and Chicopee Falls. A Brightwood man was offered a $20 photograph for $6, and others were offered marvelous bargains.

The pseudo agent got whatever he could on the cards, from fifty cents to $2, and in all he must have cleared several hundred dollars.

He was tracked to Palmer, and the officers were told to watch for him. They found that two sharpers instead of one were working the town. One man, who gave his name as A. H. White, was arrested and taken to this city. Morse was arrested in Willimantic, Conn.

White claims that he was working for Morse and did not know that Morse was a fraud, so he was released from custody this morning.

Mr. Moore is determined to push the case against Morse to the full extent of the law.—*Springfield, Mass., Paper.*

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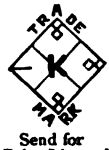
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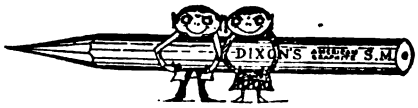
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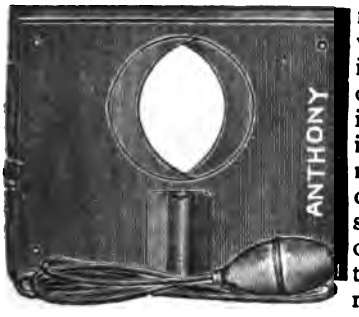
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I shall read with much pleasure the neat and well-compiled volume. John G. Bullock, Philadelphia.

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Think it by far the most instructive Annual I have ever read. That article by Capt. Pizzighelli on "The Platinum Print" is what I have been looking for a number of years. Milton B. Punnett.

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All the contributions are from men well known in Europe and America. It is one of the most interesting works connected with photography we have ever had, and predict an immense sale of it for the publishers. Each article would have made an excellent paper to have read at our Convention. No photographer should be without this work, and everyone can afford to purchase it, as the price is within the reach of all.—*The Photographic Eye.*

The work is an important one. It contains 643 pages of reading matter, contributed by a wonderful array of authors from all parts of the world. The editors are to be complimented highly upon their indefatigable industry in collecting so much splendid material together. No one but a bookmaker knows how much work this involves. There are fifty articles we should like to quote words of wisdom from. Everybody should have a copy.—*The Philadelphia Photographer.*

In it we have the opinions and writings of English, American, German and Austrian photographers side by side, which is of itself a new but very agreeable departure. There is also much valuable information on emulsions, special developers, and photo-engraving processes, besides illustrations of new and novel apparatus.—*Scientific American.*

Compliment you upon the beautiful get-up of the volume. R. L. Maddox, M.D.

It does the greatest credit to its editors and publisher; indeed, it is a book that does credit to photography itself, and one of which photographers of every name and nation may well be proud. W. Hanson.

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"The International Annual" I consider a great success. GEORGE MANSFIELD.

I have looked at many of the articles and there seems to be a great deal that is interesting in it. Hon. J. G. P. VERECKER.

It is larger than I expected, and contains a vast mass of matter. Rev. H. ALDWIN SOAMES.

Congratulations on the success of the work. C. V. J. POIRIN.

The new manual speaks well for the efforts you have made and must gratify you. JOHN HARMER.

I received your beautiful volume this morning. It is edited in a smart, business-like and readable manner. It is printed as no photographic publication has ever been printed before—and illustrated with gems of portraiture. ADOLPH W. BEER.

It is beautifully got up and reflects great credit on its editors and publishers. B. TINDALL.

The "Annual" is a very considerable success and I hope will continue to be so from year to year. CHAPMAN JONES.

The Summer Annual is evidently quite a drawing-room volume and a book to aid and enlighten one in the photographic path. J. CHESTER JERVIS.

P. S.—The "Photophane of Dawn" is exquisite.

The photogravure is an excellent piece of work. The photophane seems good. C. HEATHTON LEWIS.

"The International Annual," No. 1, in which you have so admirably succeeded. The number of writers and variety of topics is far beyond all my expectations. You have turned out what is really a standard work of great intrinsic value, which I shall prize highly as a text-book. B. J. SAYCE.

It is the best collection of readable articles that has been done in this form. It is not overloaded with formulæ, tables and figures, as too often happens. H. P. ROBINSON.

I think it is a very desirable book to own. ED. F. WILDER.

The matter contained in the book, to the progressive photographer, is worth more than fifty times the price I paid for it. WM. BELL.

I sincerely hope that the same style of matter will be brought out annually. It will occupy a place of honor in my library. E. BIERSTADT.

FREDONIA, N. Y., September 10, 1888.

"The International Annual" is full of interest. I have read it with more pleasure and benefit than any similar publication gave me. Again I thank you. Yours, E. K. HOUGH.

I have been reading "The International Annual" of Anthony's Photographic BULLETIN (for 1888) and must thank you and our dear friend Harrison most heartily for the service you have rendered to the photographic fraternity in compiling a work that introduces us to such a large number of distinguished writers, both in England and America. Surely, it is a great pleasure to commune with such spirits on subjects that occupy no small portion of our time, and with which we must be practically acquainted, if we would be successful in our work. Many of us would not hesitate to take long journeys and spend much time and money for a personal interview with such noteworthy teachers, and yet we often hesitate to make their acquaintance and listen to their most valued thought, when we may do so in our own private study and at small expense. It is often said by some that very little can be learned from books, and this is no doubt true with the class of students whose education is based upon observation and oral instruction, and whose expertness in their work is due simply to constant practice. The best writers might not be able to compete with these in their special work; but this is no valid reason why such writers should never be consulted. It is not their business or aim to be expert in working the processes they record, but expert in describing and portraying these in choicest forms of speech. Our greatest love for Shakspeare is because he tells us things we know, but never could express. For the same reason the Annual above referred to will, no doubt, be often studied by every aspiring student of photography, for in it he will find recorded not only what he knows himself, but the combined experience of many others who have been striving to reach the highest excellence. Thus will he gather about him the most advanced spirits of his day and generation, and, aided by their strength, reach the goal for which he strives. J. B. GARDNER.

The "Annual" come to hand, and I have been very much interested in reading it. It is full of good things, and many of the articles are gems of thought and of great practical value. E. M. ESTABROOKE.

It is the best annual published. G. S. BLISS.

It promises to be very entertaining and instructive reading. GEORGE W. GRAY.

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consists of a circular plate with a rim around its border, the object of which is to exclude all light from entering between it and the revolving disk, which can be set or adjusted at will to revolve at any required velocity by means of a strong watch spring wound about a ratchet-wheel, which is mounted on a pivot and held at any tension by means of a pawl.

The disk may also be set or held to give a clear opening to enable the operator to focus while the shutter is attached to lens.

The shutter may also be turned and set to any position to give more or less ground or sky exposure.

On the back surface of all shutters is attached a binding collar with clamping screw, to hold it firmly to lens mounting without injuring it.

When ordering, please state the aperture of lens and the exact diameter and length of rim over which the collar is to fit.

Size.	Apert. of Shutter.	Price.	Size.	Apert. of Shutter.	Price.
No. 1.	1 inch - - - -	$4 50	No. 3.	1½ inch - - - -	$5 50
" 2.	1¼ " - - - -	4 50	" 4.	1¾ " - - - -	5 50

These Shutters are furnished with Collars to fit all Standard Lenses.

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Success Print Mounters.

The Cut fully describes its operation. We have added a large size which serves for both large and small work, and is a true time-saver.

6-inch, - - $1 00

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WYLES'S CLOUD NEGATIVES.

The magnificent series of clouds and sky effects produced by Mr. Wyles are now offered to the profession in a practicable form and at a low price. They are unbreakable; can be sent through the post; are extremely transparent and quick printing; and comprise an infinite variety of the finest possible subjects.

Special medals have been awarded for these productions; they have been eulogized by the press and universally admired by artists.

The PRINTING is simplicity itself. The landscape, being sufficiently deep, is removed from its negative, and a suitable cloud negative being selected is adjusted to the sky of the print and placed in a printing frame. *Outside* the frame a piece of card-board or thick paper is fastened, it should be roughly torn to something like the outline of the landscape, and its edge should be turned up to admit of the gradual vignetting of the sky to the landscape. *On no account should sharp-edged cut-out masks be placed in contact with the view.* They are unnecessary and almost certain to be inartistic.

The negatives are best stored together in non-absorbent mineral paper, and protected between card-board. If by absorption of the transparent medium dry spots should appear, rub all over both sides with common vaseline and lay aside for a day or two, after well rubbing off with crumpled blotting paper the cloud negative will be found quite perfect again. If too moist in appearance, the clouds should be well rubbed with blotting paper before use.

PRICES.

5 x 8, each,	$0.60
8 x 10, "	1.00

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FRONT FOCUS NOVELETTE CAMERA.

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And more easily ASSEMBLED, MANIPULATED and REVERSED than any other in market.

Cuts and description now being made ready.

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As will be seen by the cut, the glass negative lies flat on the bottom of the tray, necessitating the least possible quantity of developer, and the depressed channel in bottom of tray is sufficiently deep to allow the finger or plate lifter to engage firmly underneath the plate, and remove it without risk of scratching. They are of Polished Hard Rubber.

SIZES.		EACH.
No. 3,	4¼ x 5½	$0.28
" 4,	5¼ x 8¼	.50
" 5,	7 x 9	.72
" 6,	8¼ x 10¼	1.08

Sold by all Dealers. E. & H. T. ANTHONY & CO., Sole Agents.

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The Eclipse Album, with interchangeable leaves, is the most perfect manufactured. Each card mount is *distinctly* independent, and may be taken out or replaced without having to disturb any other leaf or part of album. They are handsomely finished in Morocco half leather bound, with gilt title and enclosed in a neat box.

Extra cards for Eclipse Album may be had if desired.

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WITH TWENTY-FOUR COLLINS' CARDS.

No. 1.	6 x 7 cards, for	4 x 5	photographs,	$2 25
" 2.	7 x 10 "	5 x 8	"	2 50
" 3.	10 x 12 "	6½ x 8½	"	3 75
" 4.	11 x 14 "	8 x 10	"	4 25

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ABOUT N. P. A. ALBUMEN PAPER.

OUR friends will recollect that about a year ago we invited all the photographers of the country to send us any criticisms or suggestions they might desire to make on this excellent Albumen Paper, that we might send them to the manufacturer, whose aim it was to make it *as perfect as it was possible to do.*

The Paper seems to have given such entire satisfaction to the most eminent photographers in the country that we believe but one suggestion was received, which was promptly forwarded to Dresden.

This is the most *satisfactory* evidence of the superiority of the Paper, and is of more value to guide photographers than if we were to advertise on our own account that it is "ahead of anything in the world."

We certainly believe that it is better than any other, in the *chemical preparation of the Albumen* and in the care with which the first quality is *selected.* It is very easy to make paper a few dollars less expensive to the ream by leaving in defective sheets, but it is *not really cheaper to the photographer.*

The next important point for the photographer to know is how he can be *sure* he gets the right paper in these days of counterfeiting brands. He will be sure in this respect by looking *through* the paper for the *water mark* N. P. A., *which cannot be counterfeited;* while a *brand,* as we said last year, can be put on "while you wait."

The *best is always the cheapest,* when you need it to *use;* though it may not be, if you merely wish it to *sell.*

Photographers will find that some parties will charge them the same price for *inferior papers* that they do for the N. P. A., and will try to persuade them that the other is "just as good." It *is* just as good—and better, too—for them to *sell,* because they make more profit on it; but the photographer who *uses* it will not find it so profitable as he who *sells.*

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All of the "CLIMAX" STUDIO CAMERAS are fitted with

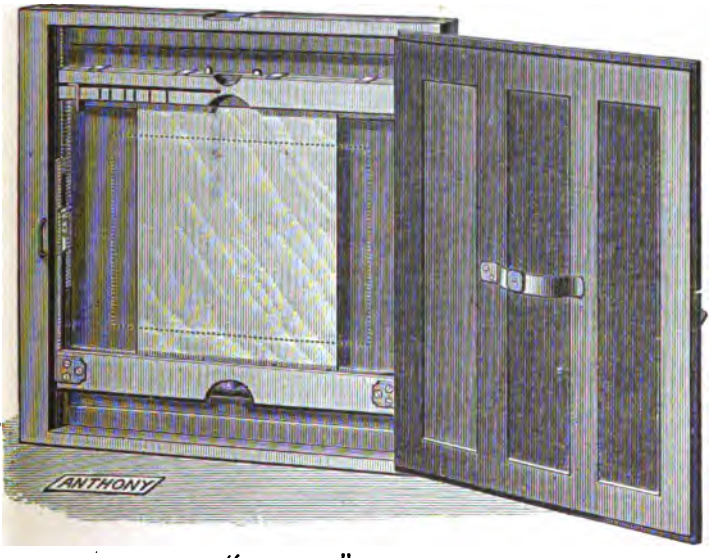
THE CELEBRATED BENSTER PLATE HOLDER.



THE ABOVE CUT REPRESENTS

THE "BENSTER" HOLDER WITH CURTAIN SLIDE

which may be applied to all "Climax" cameras except No. 43 B. It is not recommended with curtain slide for wet plate work.



THE "REGULAR" BENSTER HOLDER.

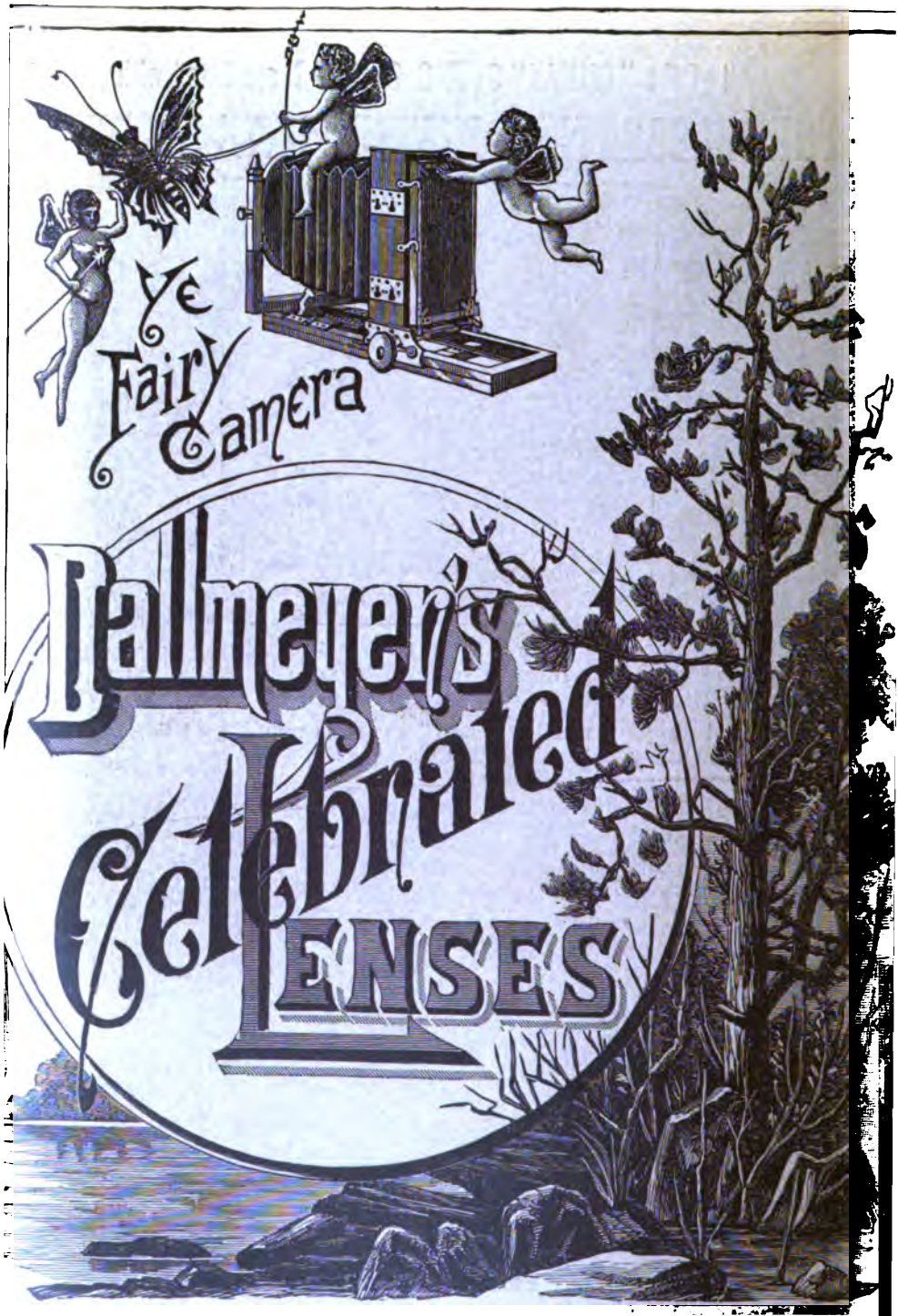
The best plate holder ever made for either wet or dry plate work.

It requires no kits, is easily adjusted to any size of plate in the darkest of dark rooms. The working part is the same in both styles.

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or the Amateur and the Professional.

Vol. 20. February 23, 1889. No. 4.

ANTHONY'S Photographic BULLETIN



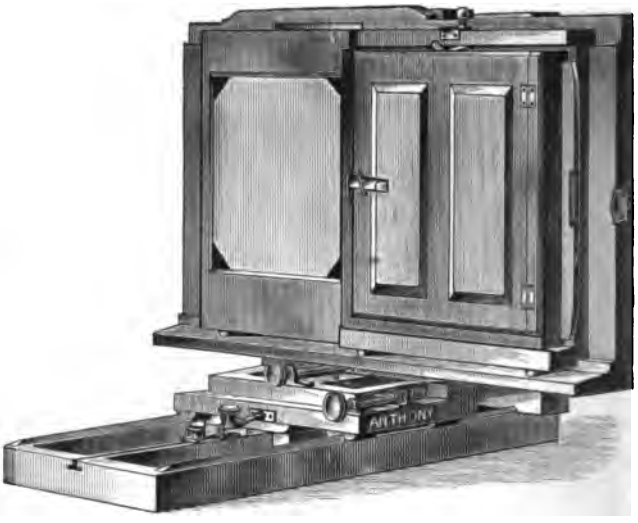


Edited by
PROF. CHAS. F. CHANDLER, Ph.D. LL.D.
Prof. of Applied Chemistry in the School of Mines,
COLUMBIA COLLEGE, NEW YORK CITY.

E. & H. T. Anthony & Co.,
591 BROADWAY
New York.

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CLIMAX ROYAL CAMERA.

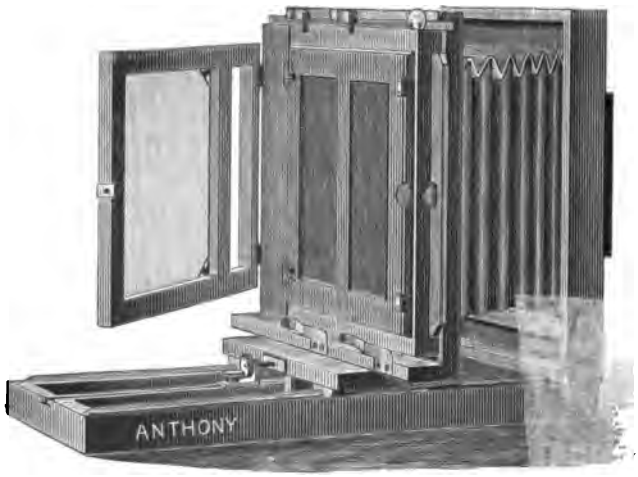


THIS camera has the sliding back or carriage for plate holder, and has a ground glass attached in place, where it is always at hand. When the operator has the plate holder ready, he places it in the carriage, instead of laying it on the floor or some other inconvenient place, while he gets his focus; this done, he merely slides the holder, ground glass and all, together. It is made in the best manner, of fine mahogany, and is fitted with the celebrated Benster plate holder, working 8 x 10 plates, and smaller; two 5 x 8 negatives on an 8 x 10 plate; two 4¼ x 6½ negatives on a 6½ x 8½ plate; two 4 x 5 negatives on a 5 x 8 plate, etc.

PRICES.

8 x 10 size, complete,	$43 75
11 x 14 " "	70 00

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THE best every-day camera in the market. With sliding holder and swinging ground glass; improved focus screw; extension bellows. With rabbeted kits for dry plate and ferro-type work. With a single 4-4 or extra 4-4 tube, it will make all [illegible] 1-4 [illegible] 8 x 10; [illegible] two 5 x 7 [illegible] 5 x [illegible] tubes. With [illegible] 1-4 [illegible] copying and enlarging to 8 x 10; with four 1-4 Gem tubes set in brass [illegible] large bon-tons or card size on 7 x 10; also four of the same size on 5 x 7 [illegible] tons on 5 x 7.

PRICES.

No. 43 C.	All complete except tubes,	[illegible] 50
" 43 C.	As above, fitted with four 1-4 Gem tubes,	[illegible] 50

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MAGIC CAMERA STANDS—THE BEST MADE.



No. 1. 8 x 10.....$12.00



No. 2. 8 x 10 to 11 x 15...$15.00



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" 4. 18 x 22 and 20 x 24..... 25.00



THE BEST IN THE WORLD.
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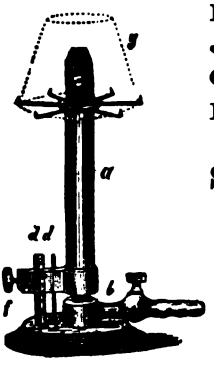
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The Lightest Running,
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Made of the Best Materials,
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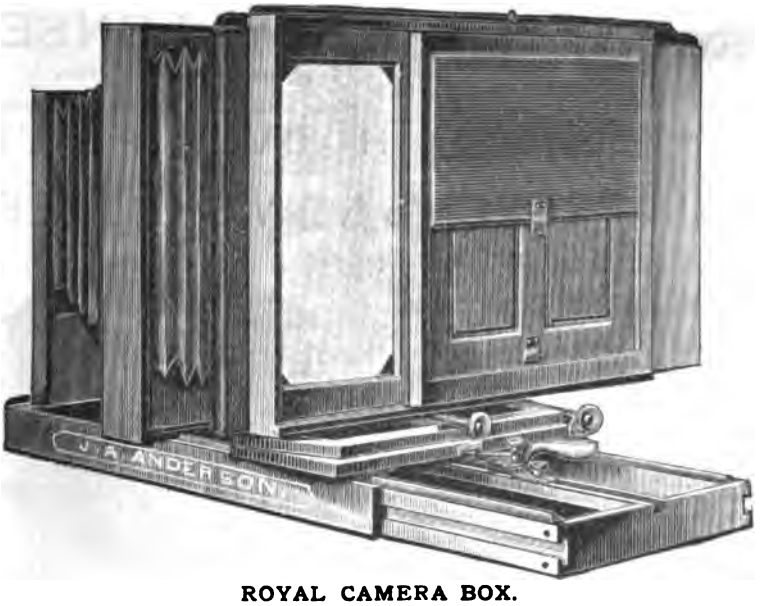
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PROSCH RAPID,
DUPLEX STEREOSCOPIC,
DUPLEX DETECTIVE,
DUPLEX TRIPLE IMPROVED.



DUPLEX WITH SILENT TIME.

The Prosch Rapid is capable of making exposures so rapid as to test to the utmost the skill of the most expert operators to develop. It is only for instantaneous work, such as taking horses at most rapid gait; athletes running, jumping; divers, etc., etc. Although operating between the lenses it is entirely different from the Duplex. Made in two sizes: No. 1, 1-inch opening, price, $18; No. 2, 1¼-inch, $22.

The Duplex Stereoscopic fills perfectly the want of a time and instantaneous shutter for Stereoscopic work. It consists of two Duplex Shutters on one frame, operated by one lever and one release, and consequently gives two identical exposures. Made in two sizes: No. 1, ¾-inch opening, $18; No. 2, ⅞-inch opening, $19.50. Lenses are arranged at 3¼ inches from centers; but this will be increased, if ordered, up to 3¾ inches for $1 additional. Rotary Stops, $2; Flange Collars, when required, 75 cents. Silent time attachment, $1.50; combined with slow instantaneous, $2.

The Duplex Detective is a reliable, compact and efficient Shutter for Detective Cameras, which can be used for both time and instantaneous work. Release for instantaneous is by a push trip (pneumatic if desired). Time exposure mechanism is same as silent self-setting time to regular Duplex Shutters, by which instantaneous exposures can also be made by pressure to pneumatic bulb. Price, including fitting to Camera and Rotary Stops, $15.

THE EVER POPULAR DUPLEX SHUTTER still retains its lead of all others, whether of home or foreign production. The Rotary Stop is considered by an army of users an indispensable adjunct to the shutter, likewise the silent, self-acting time, and slow instantaneous attachment, which operates shutter by direct pressure of air through pneumatic device.

DUPLEX ENLARGED REVISED LIST.

Numbers.....	00	0	0A	1	1A	2	2A	3	3A	4	5	6	7
Openings, inch...	⅜	½	1	1⅛	1⅜	1⅝	1⅞	1⅝	2	2½	2½	3	3½
Price.....	$11.50	$12	$12.50	$13	$13.50	$14	14.50	$16	$19*	$20*	$22*	$24*	$27*

* Including silent time attachment.

Rotary Stops up to No. 1, $1.50; above that, $2. We do not make Rotary Stops for sizes larger than No. 2A, except by special agreement. Silent time attachment same prices as Rotary Stops.

When Flange Collars are required, as on Ross and other lenses similarly mounted, 50 cents extra. Shutters can be furnished for most standard lenses, fitted ready for use, but it is to customer's interest to forward his lens tube with order, otherwise perfect fit is not guaranteed. These shutters are owned and manufactured solely by the Prosch Manufacturing Co. None genuine without our stamp. Circulars containing full information forwarded on application.

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FOR SALE BY ALL PHOTOGRAPHIC STOCK DEALERS.

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Speak Louder than words.

To produce the best work you must use the best tools.

BECK'S AUTOGRAPH LENSES

are therefore in great demand. Write to your dealer for particulars, or send direct to the importers,

W. H. WALMSLEY & CO.,

Photographic Stock Merchants,

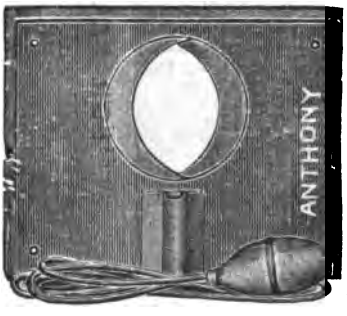
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The E. M. B. Pneumatic Gallery Shutter

(PATENTED APRIL 20, 1886)

FOR GALLERY USE ONLY.

THIS Shutter is the most easily operated and readily adjusted of any gallery shutter in use. It is very simply constructed, does not jar the camera, or get out of order. It operates with perfect ease and freedom and may be made to remain open for focusing by simply squeezing the bulb to open the shutter and then kinking the rubber tube and fastening the kink with a clothes-pin or clip, which when removed allows the shutter to close immediately. It is made in one size only, the outside being rectangular and measuring seven inches by ten inches. The opening is 3¼ inches in diameter. It is furnished with a brass connecting tube which is designed to be fastened on the front of the camera, penetrating the front so that the inner rubber tube can be fastened to one end of this brass tube, and the outer rubber tube connected with the bulb to the other end, making a very neat and convenient method of connecting the tube with the shutter, which is of course to be placed on the inside of the front of the camera.



We having acquired possession of the Cadet patent for pneumatic working of gallery shutters, are enabled to offer this as the only shutter guaranteed not liable for infringement of this patent. Price, $4. Larger sizes to order.

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HANDSOME SOLE LEATHER DETECTIVE CAMERA

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108 First Quality Dry Plates, 2½ inches square;

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Because of its compactness and beauty; its unlikeness in appearance to a Camera, yet being one with which you can photograph anything that could be done with any other Camera.

That you can make pictures with it unequaled by any other method; also you can finish at any time *one* or more negatives, and see precisely what results you are obtaining.

The Plates are INEXPENSIVE, EASILY HANDLED and MANIPULATED by any one.

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FOLLOWING STOCK SIZES:

Size.	Per dozen.	Size.	Per dozen.	Size.	Per dozen.
3¼ x 4¼,	$0 45	6½ x 8½,	$1 65	16 x 20,	$12 50
4 x 5,	65	7 x 10,	2 10	17 x 20,	13 00
4¼ x 5½,	75	8 x 10,	2 40	18 x 22,	15 50
4½ x 6½,	90	10 x 12,	3 80	20 x 24,	18 50
4¾ x 6½,	1 co	8½ x 14,	4 50	5⅞ Circle,	1 20
5 x 7,	1 10	11 x 14,	5 00	6⅜ "	1 60
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SEED VIGNETTERS.

A TIME SAVER IN PRINTING.

All Photographers will agree that the way of printing Vignettes has not been as satisfactory as might be desired, the necessity of using tissue paper, cotton and a number of other appliances making it tedious and troublesome, and only with great care satisfactory results have been obtained. SEED'S TRANSPARENT VIGNETTER dispenses with all these articles, and prints a Vignette *in direct sunlight, in the same way and in the same time* as an ordinary print is made, by putting it in the printing frame *first*, and on top of it the negative to be printed. A fine Vignette will be always the result. They are made in eight sizes—five for busts and three for three-quarter figures on 5 x 7 and 5 x 8 plates.

Size.	Per dozen.	Size.	Per dozen.
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The Adjuster is to be screwed and glued to the ordinary printing frame which the photographer may have in use, the Vignetter is to be adjusted on the front and held by the brass springs, while the negative is put in the frame in the regular way. As the Vignetter prints in direct sunlight, without the use of tissue paper or any other appliances, in the same time and with the same ease as an ordinary print, its merits will be soon appreciated by those who try it. The backgrounds used should not be too dark.

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SEED ADJUSTABLE PRINTING FRAMES, Patented.

This printing frame, having extra space to allow the adjusting of the negative over the center of the Vignetter, fastens it by means of two clamps in two opposite corners, holding it in its place, thereby enabling to print from all negatives on the Vignetter, and will be therefore a desirable companion to the Vignetter. Made for 5 x 7 and 5 x 8 sizes, to correspond with Vignetters.

Size.	Per dozen.	Size.	Per dozen.
5 x 7,	$10 00	5 x 8,	$10 00

SEED'S READY DEVELOPER.

Size of bottle.	Per bottle.	Size of bottle.	Per bottle.	Size of bottle.	Per bottle.
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See Notice in next Issue.

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EUREKA BURNISHER

FOR IMPARTING A BEAUTIFUL FINISH TO PHOTOGRAPHS.



THE superior qualities of this Burnisher consist: first, of first-class workmanship in its construction; second, the Roll can be turned back in a second from the Burnishing Tool, so that the Tool can be dressed or cleansed, and the Roll be immediately replaced ready for operation without having to handle hot plates, etc., as in the other burnishers.

It has also the removable Burnishing Tool patented by W. G. Entrekin. The Burnisher can be heated with gas, coal oil, or alcohol. Another great advantage: it will produce a beautiful satin finish to photographs, and any boy can work it.

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has stood the "test of time," and is now *universally* acknowledged the BEST CAMERA STAND ever introduced to the photographic trade. It is, without doubt, the most rigid and at the same time the easiest handled.



No strength is required to elevate the Camera, it being counterbalanced by weights sliding up and down on grooved guides; thus the Camera being as rigid at its greatest height as at the lowest, the center of gravity being always the same, which cannot be said of many stands in the market.

No. 1, for 4-4 to 10 x 12 cameras, 30-inch bed.....$22 00

No. 2, for 11 x 14 and 14 x 17 cameras, 40-inch bed.....22 00

No. 3, for 17 x 20 and 18 x 22 cameras, 48-inch bed..... 25 00

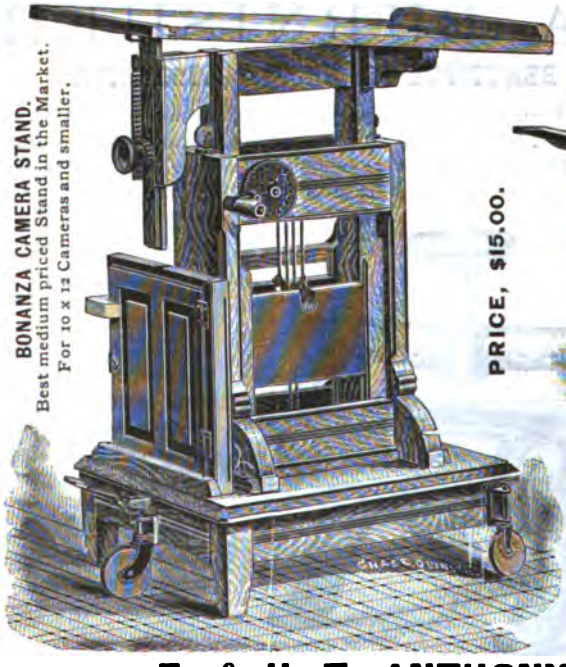
No. 4, for 20 x 24 cameras, 60-inch bed..... 30 00

No. 5, for 25 x 30 cameras, made to order only..... 35 00

Nos. 1 and 2 have one weight; Nos. 3, 4 and 5 have two weights and base to correspond to size of bed.

FOR SALE BY ALL DEALERS

All the "Gem City" and "Bonanza" Cameras are supplied with the "Gem City" Lever Caster without extra charge.



BONANZA CAMERA STAND.
Best medium priced Stand in the Market.
For 10 x 12 Cameras and smaller.

PRICE, $15.00.

"Gem City" Lever Caster.



Can be attached to any Stand of our make.

PRICE, $1.00.

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Pocket Repeating Flash Lamp.

(PATENT APPLIED FOR.)



THE lamp here offered embodies the latest improvements of the original inventor of this system of magnesium lighting. It consists of three essential parts, namely; a large flat alcohol lamp, a receptacle for magnesium holding about sixty grains, and a large hand pressure bulb, all compactly joined together, but separable for convenience of carrying. The apparatus when properly charged will give with a single pressure on the bulb, an intense and brilliant light sufficient to fully expose from fifteen to twenty feet. By repeated pressures large interiors may be photographed with wide angle lenses.

The apparatus is held in and operated by the same hand, and requires no other support, and the light may be projected in any direction, and at any angle of elevation.

Price Complete, - - - - - $3 00

Pure Magnesium, per ounce, post-paid, - - 50

CAUTION.—The so-called "flash-powders" should never be used in this or any other form of lamp, but only pure magnesium.

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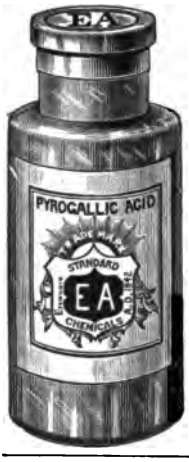
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THE CRAMER DRY PLATE COMPANY,
THE CARBUTT DRY PLATE COMPANY,
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AND MANY OTHERS.

See that it has the E A Trade Mark.

Put up in 1 oz. Bottles. | Put up in 8 oz. Cans.
" 4 oz. Cans. | " 16 oz. "

☞ ASK YOUR DEALER FOR IT. ☜

Cooper's Concentrated Developer, which is found to work so well on all kinds of plates, is compounded with the E A Sublimed Pyro; also Anthony's Economical Developer, and Stanley's Concentrated Developer.

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WITH PNEUMATIC RELEASE,



consists of a circular plate with a rim around its border, the object of which is to exclude all light from entering between it and the revolving disk, which can be set or adjusted at will to revolve at any required velocity by means of a strong watch spring wound about a ratchet-wheel, which is mounted on a pivot and held at any tension by means of a pawl.

The disk may also be set or held to give a clear opening to enable the operator to focus while the shutter is attached to lens.

The shutter may also be turned and set to any position to give more or less ground or sky exposure.

On the back surface of all shutters is attached a binding collar with clamping screw, to hold it firmly to lens mounting without injuring it.

When ordering, please state the aperture of lens and the exact diameter and length of rim over which the collar is to fit.

Size.	Apert. of Shutter.	Price.	Size.	Apert. of Shutter.	Price.
No. 1.	1 inch - - - -	$4 50	No. 3.	1½ inch - - - -	$5 50
" 2.	1¼ " - - - -	4 50	" 4.	1¾ " - - - -	5 50

These Shutters are furnished with Collars to fit all Standard Lenses.

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VIOLET LIGHTNING FLASH COMPOUND.

FOR PICTURE MAKING AT NIGHT use "VIOLET LIGHTNING FLASH"—A light brighter than the sun. For sale by all dealers in photo goods.

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IMPROVED RELIABLE BROMIDE PAPER.

(PATENTED.)

FOR CONTACT PRINTING AND ENLARGEMENTS.

After many and costly experiments we have succeeded in producing a Bromide Paper which far excels any heretofore made, and which we are enabled to make perfectly uniform.

This paper we now introduce to the trade under the name of Improved Reliable Bromide Paper, feeling assured it meets the requirement for an absolutely reliable article.

This paper we are obliged to sell at a rather higher price than the paper we have hitherto made; but as it will be of superior quality, and also has our guarantee, it will be well worth the difference to the purchaser.

The Improved Reliable Bromide Paper will be made both in quick (manilla color wrappers) for use with Cooper Enlarging Lantern, and in slow (blue wrappers) for day-light.

PRICES.

CUT SHEETS.

SIZE.	PER DOZ.	SIZE.	PER DOZ.
3¼ x 4¼	$0 25	11 x 14	$3 00
4 x 5	40	12 x 15	3 35
4¼ x 5½	50	14 x 17	4 50
4¼ x 6½	55	16 x 20	6 00
4¼ x 6½	60	17 x 20	6 40
5 x 7	65	18 x 22	7 50
5 x 7½	70	20 x 24	9 00
5 x 8	75	22 x 27	11 25
6¼ x 8½	1 00	24 x 30	13 50
8 x 10	1 50	25 x 30	14 00
10 x 12	2 25	24 x 36	16 00
10 x 14	2 65	30 x 40	22 50

IN ROLLS (10 Yards).

	PER YARD.		PER YARD.
10 inches wide	$0 56	20 inches wide	$1 12
11 "	62	22 "	1 24
12 "	68	24 "	1 35
14 "	79	25 "	1 40
16 "	90	30 "	1 68
18 "	1 00	31 "	1 74

EXTRA LARGE SIZES.

	PER YARD.		PER YARD.
33 inches wide	$1 85	37 inches wide	$2 10
35 "	1 96	41 "	2 30

These sizes are larger than anything that has ever before been attempted. ANTHONY'S PATENT RELIABLE PAPER is coated by the most perfect and the largest machinery ever designed for the purpose, and is warranted uniform in quality and capable of producing the most beautiful results photographically.

The grades are H. G., heavy grained; H. S., heavy smooth; L. S., light smooth, all at one price.

WE DO NOT MAKE ENLARGEMENTS FOR THE TRADE.

NOTICE.—Our Bromide Paper is made under U. S. Letters Patent to T. C. Roche, dated February 8, 1881, No. 241,070. We have commenced a test suit in the United States Circuit Court for the Southern District of New York, against the Eastman Dry Plate and Film Co., George Eastman, Treasurer, and the Scovill Mfg. Co., in which we claim that the paper manufactured by the Eastman Co. is an infringement of our patent, and the Scovill Mfg. Co. are sued as sellers of it. This suit we shall press as vigorously as possible. In the meantime we deem it our duty to ourselves and to the trade to caution all persons against infringing our patent, as dealers are liable equally with the manufacturers for both damages and profits.

E. & H. T. ANTHONY & CO.

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THE LATEST.

ANTHONY'S

CLIMAX NEGATIVE FILMS,

TRANSPARENT AND FLEXIBLE.

For Portraits, Landscapes and Drop Shutter work. **Weight and Space reduced to a minimum.** Fourteen dozen Films weigh less than one dozen Glass Plates. They are developed in the same manner as Dry Plates. They reduce halation. They can be printed from either side of film.

ANTHONY'S CLIMAX NEGATIVE FILMS are made upon a substance of recent discovery, which is admirably adapted to the manufacture of a **Perfect Negative Film,** combining **Transparency, Strength** and **Toughness of Composition,** which renders them capable of being made so thin as almost to eliminate the question of weight and bulk in carrying. They are made with a **fine mat surface,** which **reduces halation,** and are **perfectly impervious to water.** Can be sent by mail without danger of breakage.

PRICES PER DOZEN.

3¼ x 4¼,	$0 65	5 x 7,	$1 65
4 x 5,	95	5½ x 7,	1 75
4½ x 5½,	1 12	5 x 8,	1 80
4¼ x 6½,	1 30	6½ x 8½,	2 50
4¾ x 6½,	1 40	8 x 10,	3 60

Postage extra.

A TRIAL OF THESE FILMS WILL DEMONSTRATE THEIR PRACTICAL VALUE.

FOR SALE BY ALL DEALERS.

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E. & H. T. ANTHONY & CO.,

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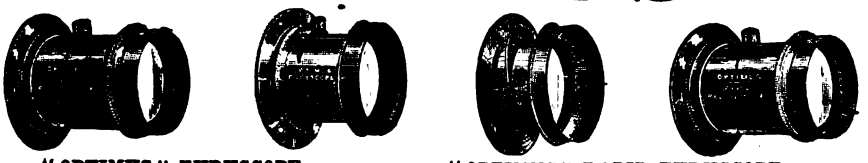
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Cameras, Lenses, and Photographic Apparatus.

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"OPTIMUS" EURYSCOPE.

"Working as it does with such a large aperture (f/6 approx.), it serves as a portrait and group lens, as well as a landscape and copying objective. There is no doubt of its proving a most useful lens." — J. TRAILL TAYLOR, *British Journal of Photography.*

"We are pleased to find upon trial that the lens ["Optimus" Rapid Rectilinear] sent for review is really an EXCELLENT INSTRUMENT."—*Photographic News.*

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"OPTIMUS" RAPID EURYSCOPE.

5 x 4	7 x 5	9 x 7	10 x 8
63|-	94|6	126|-	220|-

"OPTIMUS" RAPID RECTILINEAR.

⅛	¼	½	¾	1	1½	2	2½	3
33|-	45|-	49|6	64|-	82|6	127|6	142|6	180|-	225|-

"OPTIMUS" WIDE ANGLE SYMMETRICAL.

¼	½	1	1½	2	2½	3
39|-	52|6	82|6	127|6	142|6	180|-	225|-

"OPTIMUS" QUICK ACTING PORTRAIT.

Diam.....	2 inches.	2¾ inches.	3¼ inches.
Price.....	90|-	120|-	180|-
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99 HATTON GARDEN, LONDON.

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Combined Permanent Intensifier and Reducer

FOR

GELATINE PLATES.

SOMETHING LONG DESIRED.

An Intensifier which builds up the weakest negative to any degree of strength, with the perfect clearness of a wet plate, without the slightest stain, removing any trace of fog occasioned during development, and producing a brilliancy of result equaled only by that of a well-developed plate.

THE INTENSIFIED PLATES ARE UNCHANGEABLE BY TIME OR ACTION OF LIGHT.

Price $1 per package. For Sale by all Dealers.

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THOMAS H. McCOLLIN & CO.,

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A PERFECT SUBSTITUTE FOR GLASS.

CARBUTT'S

Flexible Negative Films,

For Portraits, Landscapes, Interiors and Instantaneous Views.

WEIGHT ALMOST DISPLACED.

Comparison of Weight.—Two dozen 5 x 8 Films weigh but **7½ Ounces,** while two dozen 5 x 8 Dry Plates weigh **110 Ounces.**

NO EXTRA PROCESSES NECESSARY.

EXPOSE, DEVELOP, FIX, WASH, DRY,

and print from the same as Dry Plates; and being but $\frac{1}{100}$ of an inch in thickness, can be printed from either side.

These Flexible Films are not made on sheet gelatine, or of paper made translucent, but on a transparent material perfectly impervious to water, unbreakable, and with a fine matt surface that renders them especially desirable for Interior Views and Landscapes, as halation is entirely prevented.

They can be used in regular plate-holders for Studio or Landscape work, or in the special film-holders now supplied by the several manufacturers of photographic apparatus.

PRICE OF FLEXIBLE FILMS—PER DOZEN.

Coated with our "Special," "Eclipse" and "B" Landscape Emulsions.

3¼ x 4¼	$0 65	5 x 7	$1 65
4 x 5	95	5½ x 7	1 75
4¼ x 5½	1 12	5 x 8	1 80
4¼ x 6½	1 30	6½ x 8½	2 50
4¾ x 6½	1 40	8 x 10	3 60

Can be sent by mail without fear of breakage. When ordering from your dealer, add 5 per cent. to cost of films to cover postage.

Manufactured by JOHN CARBUTT,

Keystone Dry Plate Works,

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ANTHONY'S
Photographic Bulletin.

Prof. CHARLES F. CHANDLER, Ph.D., LL.D., *Editor.*
ARTHUR H. ELLIOTT, Ph.D., F.C.S., *Associate Editor.*

FEBRUARY 23, 1889. Vol. XX.—No. 4.

COLUMBIA COLLEGE EXHIBITION.

THE Fourth Annual Exhibition of the Columbia College Amateur Photographic Society took place in the Chemical Museum of the School of Mines, February 14th and 15th. Over four hundred and fifty pictures were exhibited, and these showed steady progress in the art among the members of the society. In such a goodly collection of photographic prints, by men who work at the art in the hours they have to spare from their studies, it is not well to be severe in criticism. Yet when the world is called in to view the handiwork of these votaries of our art, it is best to judge impartially, to criticise honestly, in order that still further progress shall be attained in the future. With this idea in our minds we rambled through the alcoves of the museum and noted the work of the members of this young and progressive society.

The first exhibit that attracted our attention was a number of 6½ x 8½ prints, by W. S. & A. W. Post, of characters in costumes for a fancy ball. In these the difference between plain and orthochromatic plates for taking colors was very well illustrated; the latter plates giving much more detail and generally more harmonious pictures.

The same exhibitors also had an excellent set of dog pictures, instantaneous views of individual dogs and groups of the animals on 4½ x 6½ plates, taken at the Somerset Kennels. In the same exhibit were also found a number of Adirondack views, on 8 x 10 plates, in which the foliage was particularly well caught. In one of these views we have a couple of canoeists crossing a stream on a log bridge, one carrying the canoe. The print is marked "taken while raining," and is remarkably good, showing the perfection of modern dry plates and the skill of the Post Brothers in getting so much detail out of a negative taken under such adverse circumstances.

Among other pictures by the same exhibitors we noted a very pretty view of an old overshot water-wheel, a bit of the picturesque that would charm an artist. Also a number of excellent instantaneous views of athletes, jumping, running, etc. One of these latter gives a picture of a jumper just turning a bar, with his feet almost touching the rail. Altogether this exhibit shows an uncommonly good knowledge of photographic processes, and is one of the best, possibly the best, in the exhibition.

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The next exhibit we noted was from the dark room of Mr. Ralph McNeil, who has already given evidence of his uncommon skill in photographic work at the exhibitions of the Society of Amateur Photographers of New York. He had a handsome frame of views and street scenes on 6½ x 8½ plates, and among them was a very fine interior. To say that his work was very good is but poorly to repay him for his skill, good taste, and the steady progress he has made over his former work; his exhibit is excellent, and we wish there had been more of it.

Cheston Simmons had an exhibit that contained some excellent pictures. A portrait of a lady on an 8 x 10 plate was excellent. It would make some of our professional photographers feel badly to think an amateur could do such good work. A group with foliage background was also very good. A picture of some dogs was also very well done. A kind of *tête-à-tête* at a window, between a lady and gentleman leaning on the sill and with the stile of the window separating them, was a unique idea, and the picture was an excellent photograph. Another novel idea in this exhibit was a number of ladies' faces peeping through foliage, also very well done.

Dr. L. H. Laudy, of the School of Mines, made an exhibit of some of his beautiful photomicrographs. His skill as a photographer is too well known to need any comment from us; but recently he has entered, for him, a new field of photographic research, that of photomicrography. In this, as in every other department of our art which he has entered, he has met with his usual success. The results shown at the Columbia College Exhibition are simply wonderful. With a photographic skill the result of years of practice, and with instruments perfectly fitted to the subjects to which they were applied, Dr. Laudy shows work that has in many cases never before been attempted, and certainly never excelled. To mention only a few of the subjects that have fallen into his hands and been made to exhibit their structure upon the photographic plate through the microscope, we noted the wonderful saw of the saw-fly, enlarged forty diameters; the foot of a spider, seventy-five diameters; the foot of a house-fly, made on both plain and orthochromatic plates, the latter giving some exquisite detail; and the same object showing pulvilli, an uncommonly beautiful result. Also a number of others that our space will not allow us to notice. They must be seen to be fully appreciated.

Henry R. Taylor exhibited a number of excellent views of Niagara Falls, surf and other views at Newport; also some good interiors. The surf pictures were particularly good, indeed we have never seen anything better upon the subject. The old "Bishop Berkeley's House" at Newport, also the "Old Mill" at same place, were excellent views of photography as well as interesting pictures.

Oswald Jackson exhibited a frame of interiors, some of which were taken by gas-light, and the results were unusually good for that kind of illumination. He also had a couple of blue prints which showed the effect of treating with ammonia water, making them paler and in some respects improving them.

Lincoln Cromwell had a number of excellent instantaneous shots of ball and tennis games. Also some fine views from various points upon the decks of the United States Steamship Atlantic. In the same exhibit we noted a number of very pretty views in Ulster county, N. Y., that were picturesque and uncommonly good photographs.

J. H. Wainwright, the Secretary of the New York Camera Club, showed a number of excellent 8 x 10 views, every one of which was a picture. They all ex-

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hibited unusual artistic taste and some very skillful work in photography. We cannot particularize; they were all very good.

C. W. & A. A. Stoughton, two of the most energetic and enthusiastic members of the Columbia Society, exhibited a number of pictures that were fully up to their work of former years. Some particularly difficult pieces were views of avenues of trees in deep shadow, yet the pictures were full of the softest detail and uncommonly pleasing to the eye. Some portraits and groups of little girls were also very good. Also an interior of chapel with Easter lilies in chancel was very fine.

There were a number of other exhibits, but our space compels us to defer notice of them until the next issue of the BULLETIN.

EDITORIAL NOTES.

THE Society of Amateur Photographers of New York had a jubilee meeting on January 31st, in commemoration of the fiftieth anniversary of the discoveries of Daguerre and Fox-Talbot. The occasion was a very interesting one from the fact that some of the oldest photographers in New York gave reminiscences of the time when the early discoveries of photography startled the New World. Dr. Laudy, of the School of Mines, exhibited the old daguerreotype apparatus from the museum of Columbia College, which proved highly interesting to the modern dry plate workers.

THE Oldham (England) Photographic Society recently celebrated its twenty-first anniversary by a dinner at the Freemasons' Hall. Each member present received a unique card, which may be described as follows: "The background is formed of the covers of twelve of the principal photographic journals and almanacs. In the center is a photograph in miniature of members of the present council, below which is the coat of arms of the borough of Oldham, and the society's presentation print for 1888. In the top left-hand corner is a photograph of the first meeting place of the society. On the same side, at the bottom, is a list of the first council, formed in 1867. In the top right-hand corner is a photograph of the Lyceum, the present meeting place. In the corresponding corner below is a list of the present council for the year 1888. The whole is surmounted by a photograph of the President (Mr. Greaves).

WE are indebted to the worthy Secretary for a copy of this card, and note that the BULLETIN is counted among the twelve most prominent photographic journals of the world; a very good reproduction of its cover appearing on this little memento of the Oldham Society's Dinner.

THE Photographic Society of Chicago will hold an exhibition in that city some time in May next. Medals and diplomas will be awarded, and the competition is open to both professionals and amateurs. Circulars of information can be obtained from C. Gentilé, 96 State street, Chicago.

WE are indebted to our good friend, Mr. Fred. E. Ives, for a copy of his handsome monograph on "A New Principle in Heliochromy." It is beautifully printed on fine paper, and is a valuable addition to our library. At an early date we hope to give our readers some idea of its contents, which discuss some of the author's methods for producing photographs in colors.

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At the recent meeting of the Photographic Section of the American Institute, Dr. Milton J. Roberts exhibited his method of taking photographs in medical and surgical cases by means of electricity and the magnesium flash. In this way it is possible to move the shutter of the camera and fire the flash at the same instant. As a means of marking the progress of disease in hospital wards, or even in private houses, photography is becoming more and more useful every day.

We are indebted to Mr. J. E. Davison, of the Providence Camera Club, for cards of invitation to the lantern exhibition given at Blackstone Hall. The subject of the evening was "Narragansett Bay as seen by the Club," and we are satisfied that the occasion was a very enjoyable one. We regret that time and space prevented us from participating.

The New York Camera Club held a special meeting for the election of new members and other business, on Friday, February 15th last. The meeting was the first in their new club rooms at 314 Fifth avenue, where they hope to soon be in good working order.

"An Illustrated Description of Boston"—a lantern exhibition of the work of the members of the Boston Camera Club—was given at Chickering Hall, Tremont street, Boston, on February 13th last. After the slides have been to Chicago and San Francisco, they can be had by other societies by applying to Mr. Edward F. Wilder, the Secretary of the Boston Camera Club, 50 Bromfield street, Boston, Mass.

The first annual exhibition of the Springfield Camera Club took place January 24th, 25th and 26th, at Jensen's, on Main street, Springfield, Mass. Among the prominent pictures we note Mr. Hinsdale Smith's "Old Powder Mill," which took the prize for landscapes; also "On the Westfield at Huntington," by the same member. Another pretty landscape was W. P. Draper's "In the Maine Woods." "Market Street Fire," by Henry N. Bowman, was also a good picture. The "Three O'clock Express," by C. W. Shaw, was another good instantaneous shot, and very well caught. The following is the list of prize winners: Landscape, Hinsdale Smith, Jr.; marine view, Lewis J. Powers, Jr.; architecture, H. N. Bowman; interior view, Charles W. Shaw; animals, F. P. Bigelow; instantaneous, F. P. Bigelow; portrait, W. P. Draper; group, Ames Carter, of Chicopee Falls; composition picture, same; detective camera views, Ellis A. Hallett; bromide enlargement, H. N. Bowman; transparency, W. P. Draper; general exhibit silver medal to F. P. Bigelow.

We regret to hear that the fire which destroyed the laboratory of the Ohio State University also burned a large amount of the valuable photographic apparatus of Professor N. W. Lord and Mr. H. J. Ditmers, which was in the building, together with much valuable material in the shape of negatives, prints and lantern slides. The money value of these amounted to nearly $1,000; but this very poorly represents the time and trouble spent upon their collection, and many of them probably cannot be replaced. Professor Lord and Mr. Ditmers have our sincere sympathy in their great loss.

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LETTER FROM GERMANY.

BY DR. H. W. VOGEL.

Photographic Re-Inventions.—Metabisulphite of Potassium.—Chloride of Silver Gelatine Paper; How to Use and Tone It.—Anthony's Bromide of Silver Paper for Enlargements.—How to Make Limoges Enamels by Photography.

In the issue of the *Photographic News* of January 11th, I have read a highly interesting article about progress in photography in 1888, by Mr. C. H. Bothamley. He says: "Any one at all acquainted with the contents of photographic journals will readily call to mind many instances of the re-invention of a re-invention; the old device being brought out each time as if it were absolutely new. For example, the method of determintng the speed of a shutter by means of a tuning fork was published by Abney in 1882; and since that time the method has been re-invented several times."

Mr. Bothamley gives several other instances of re-inventions and among them the following:

Recently Ives has described a process of heliochromy (*Journal of the Photographic Society of Great Britain*, XII., p. 154, and *Photographic News*, 1888, pp. 789–802), of which he says: "I claimed for this process that, unlike any similar process yet suggested, it was based upon a true conception of the nature of light and color vision, and was a strictly scientific method of accomplishing the object sought after." Mr. Bothamley continues: "Now, as a matter of fact, a strictly scientific process of the same character was described by Vogel in 1885 (eighty-five) *Annalen der Physik*, N. S. XXVII., p. 130; *Philadelphia Photographer*, 1887, p. 681.

It has come to my notice too often, that observations made by me have been published by others some years later as their own inventions, to be surprised about the foregoing case, but I am glad to see that my rights of priority are defended by others.

During the last three months potassium metabisulphite has frequently been recommended and put into the market in place of sulphite of potassium. For what reason I will leave undecided.

My son has made some experiments with this. He doubts that the pyrosulphite of soda will preserve ready-mixed hydroquinone or pyro developer better than a correspondingly large quantity of sulphite of soda; pyrosulphite of potassium decomposes in an aqueous solution to sulphite of potassium and sulphurous acids, but the latter unites at once with the alkaline salt of the developer to sulphite of potassium, and carbonic acid escapes. For this reason the addition of caustic potassium acted favorably, by replacing the alkaline salt changed into sulphite of potassium. A subsequent addition of carbonate of potassium or soda would likewise reduce the retarding influence of the pyro sulphite of potassium. In addition to this, he remarks that it is not good to accelerate the development too much by too strong alkaline solutions; and with the hydroquinone developer and too rapid development it was the same as in the albumen process with the accelerated toning by an excessive addition of gold solution, slower work gives in both cases much more certain and better results. The fresh hydroquinone developer acts on many plates in a fresh condition much too strongly, and to obtain good results the new developer should be always mixed with some old, or in cases of over-exposure old developer

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only should be applied. To obtain hard negatives (reproductions of line engravings) it is best to apply a developer which has been pretty well in use, and can be strengthened by addition of a few drops of concentrated hydroquinone solution (alcoholic).

In my last letter I wrote to you about the quick copying process with chloride of silver gelatine paper. The same has already found, in several instances, a successful practical application. Herr Halwas obtained in the beginning of last December an order for forty-six copies of his photographic reproduction from the painting of the battle of St. Privat, intended to serve for the ornamentation of some invitation cards to a banquet, to be given by General von Pape, on the following day. The forty-six pictures were at once copied in succession at an exposure of fourteen seconds, developed at night, and were ready for delivery on the following forenoon. In the "Verein zur Förderung der Photographie" he made known that the pictures show an agreeable black tone without toning, and that they have to be developed rather deeply, because they will weaken somewhat during fixing.

Herr Baltin, in return, remarks that the pictures may be developed in a clear red light, which is confirmed by Mr. E. Vogel, who develops even in yellow light.

According to the latter, the toning of the chloride of silver gelatine prints can even take place in diffused daylight. With the toning of these prints it is of course always a peculiar thing. Absolutely even tones are very difficult to obtain.

My son copied a medium dense negative upon chloride of silver gelatine paper in an ordinary printing frame in the interior part of a room, 4 meters distance from the window, 8 seconds' time, in good weather, and 45 seconds in dark weather, and developed the same with the following developer, prescribed by Dr. Just for "albumen tones :"

I.	Water	1,500 c.c.
	Oxalate of potassium	90 grams.
II.	Sulphate of iron	25 "
	Citric acid	2 "
	Bromide of potassium	0.2 "
	Water	500 c.c.

Developer I. and II. mixed to equal parts.

The development proceeded until the picture was a little darker than intended to be when finished ; it was then thoroughly washed, as mentioned in the prescription, with diluted acetic acid and water and toned with the borax gold bath, as generally used for albumen prints.*

The tone of the pictures changes greatly in the fixing bath after toning, but improves while drying ; the longer the picture remains in the gold bath, so much more blue it will become afterwards. The time of exposure has a great influence upon the tone. It is therefore very difficult to obtain a large quantity of uniform tone. These two points form the main difficulty of the process, and it requires some practice before the correct tone can be acquired.

* The following Obernetter sulphocyanide gold bath, applied before or after fixing, gives also good results:

I.	Ammonium sulphocyanide	20 grams.
	Hyposulphite of soda	1 "
	Water	1,000 c.c.
II.	Chloride of gold	1 gram.
	Water	100 c.c.m.

100 c.c. I. are mixed with 5-8 c.c. II.

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At the same meeting of the before-mentioned society, Messrs. Beyrich, of this city, showed some very handsome enlargements upon bromide of silver gelatine paper from the well-known firm of E. & H. T. Anthony & Co., of New York, which, on account of the delicacy of the half-tones, fineness of delineation and depth of tone, met with general admiration. (*Photographic Mittheilungen*, January issue 1, 1889, p. 250.)

An original process, to imitate photographically the celebrated enamels of Limoges, has lately been patented. It is, so to speak, nothing but a carbon print process, only in reversed manner. Instead of copying under a negative, one copies under a positive; instead of black carbon paper, upon white; instead of white transfer paper, upon black. The inventor, Schirm, gives the following details:

Twenty parts gelatine, 50 parts zinc with solid color water or 100 parts zinc white paste, 9 parts sugar, 30 drops of glycerine and part of 1.8 bichromate of potassium. Rosin or collodion, made sensitive in equal manner, may also be applied.

The application of these materials for photographic purposes is well known, and is used in a good many ways; but in all processes of this kind, as the carbon process, Litchtdruck, Asphaltum process, etc., they are applied in an essentially different composition, and the reproduction of the original takes place in dark tones or lines upon light ground, where the shadows are produced by a more or less great transparency of a dark mass laid on, and the high lights on the contrary are formed by the remaining light ground. The enamels of Limoges, in opposition to all other kinds of artistic representations and enamels, have the peculiarity, that the lights are produced and executed by the laying on of a lighter coloring matter upon a dark ground, while the shadows are produced by the transparent or uncovered ground. It is exclusively this peculiarity of the enamels of Limoges which gives them the highly decorative and artistic value which they possess.

The gelatine solution composed after the before-mentioned proportions respectively, mixed with a light powdered color, and made sensitive to light, is spread in the dark upon a temporary layer of paper, muslin or any other suitable material. After drying has taken place in the dark, the film is exposed to light under a transparency, but not as in the pigment or any similar process, by using a negative of the object to be made. While with the latter—particularly in the pigment process—the use of a photometer is absolutely necessary to determine the degree of exposure, this is not required in the process in question, the impression of the light upon the sensitive film being distinctly visible, and therefore exactly controllable.

The temporary support—paper, muslin, etc.—is, after a short soaking in cold water, now pressed with the picture side upon the darker colored object to be ornamented, and treated with warm water until after removal of the support by dissolving of the unexposed parts and more or less strong appearance of the ground, the picture or ornamentation will form. In the process with asphaltum or other light sensitive resins, the development takes place by the relatively suitable means of solution. The developed picture is thereupon dried and is coated with a durable varnish.

BERLIN, January, 1889.

PLEASE continue BULLETIN; cannot do without it. R. H. MIMS.

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THE LIGHTING IN PHOTOGRAPHIC STUDIOS.

BY P. C. DUCHOCHOIS.

(*Continued.*)

XI.

Not thinking I should give instruction for the development of gelatine plates, which are now exclusively employed to take portraits, I said in one of my previous papers that the photographer should not confine himself to the study of the art of posing and lighting, but should also study thoroughly the photo-chemical processes by which the pictures are obtained. I saw, since, that it was a necessary complement to "the lighting in the photographic studios," and this because I have ascertained that there were as many pictures spoiled by a bad management of this process as by an entirely deficient lighting.

In going around lately to see the works now made in New York, I was astonished to see poor portraits, side by side, exhibited in show-cases with excellent ones. I carefully examined these pictures, trying to account for the disparity, and I came to the conclusion that most likely every one was developed with a standard developer compounded to suit the average time of exposure without taking any notice whatever of the manner the model was lighted. To satisfy myself that my criticism was right, I stepped in to some of the studios in question, and in conversing with the operators I found that, as I thought, every picture was developed after the day's work with a compound devised once for all, since, as I was told, the exposure is, so to speak, always the same, one or two seconds less, one or two seconds more, according to the intensity of the light.

Of course there are many photographers who know well how to develop, but there are a great many more who do it mechanically, not having experimentally studied the behaviors of the chemicals employed. We will try to demonstrate them in this paper and to show what should be the treatment of the plate to suit special lightings.

The ferrous oxalate developer is now discarded by almost every professional and amateur photographer. We will, consequently, confine ourselves to the development with pyrogallol, which consists of mixing this reagent with an alkali: ammonia, sodium carbonate, or potassium carbonate.

Let the experimenter place a gelatine plate—which we suppose to have been well exposed—in a dilute solution of one of these alkalies; nothing appears; but if a small quantity of pyrogallol be added, the image comes out in a certain period, and if the entire development be carried through without adding more pyrogallol, a negative image is obtained full of details in the lights and shadows, but without sufficient contrasts to produce a brilliant impression. The positive image will be flat, and insipid.

Now, let the opposite experiment be made; that is to say, develop a picture taken from the same subject, with the same lighting and exposure, using less alkali and a full dose of pyrogallol; the high lights acquire, then, great intensity, but the half darks—or details in the shadows—hang back and the half lights become buried in the high lights. Result: a picture without gradation, white and black. How true is this remark, made by Captain Abney: "Development of gelatine plates is in reality an art and a science combined; the art consists in getting gradation, the science in mixing your solution to obtain it."

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By these two experiments we understand the action of the alkalies and that of pyrogallol, and from them we can conclude *a priori* that the latent image of a model lighted by a soft, subdued light cannot be treated like one brilliantly lighted with opposition of light and dark—à la Rembrandt, for example—which is the extreme of this manner of lighting—however both plates having received a proper exposure.*

When the model is lighted to produce the latter style of pictures the lights have necessarily a great tendency to flash out under the action of the developer, while the half darks require an energetic treatment to be brought out in time. If, then, the plate be acted on by a normal developer—which generally consists of three grains of pyrogallol and twelve grains of potassium carbonate dissolved in an ounce of water—the high lights appear rapidly and require intensity before the half darks are fully developed. The resulting picture is, therefore, deficient in gradation. But if instead of proceeding thus we compound the developer with, say, half the quantity of pyrogallol, the lights will now remain comparatively weak during the first period of the development, and as soon as the half darks are well developed in density, the contrasts are easily obtained by the addition of more pyrogallol.

In the opposite case, that is to say, when the model is lighted by a diffuse light, a good picture may be obtained with the normal developer, provided the contrasts be sufficient in the lighting; but this is not generally the case and effect should be produced by the development. Therefore the plate should be treated by a solution containing, say, half the quantity of alkali and a good dose of pyrogallol, and when the lights are well out and of a certain intensity the half darks are acted on by adding the remainder to force them out.

It is not necessary to multiply these examples. From the preceding ones, everybody will see at once that the development of the portrait of a child or of a lady with a very fair complexion cannot be made as that of persons having a colored or sun-burnt face; the former entering in the general treatment of the first example, and the latter in that of the second.

As to definite formulas, none can be given. The reason is obvious. Moreover, the difficulties to overcome are not so great as they appear. By well conducted experiments and a little practice one will soon learn how to develop a picture according to the lighting, the complexion and dresses of the models. The general rule is that the lights should not gain intensity before the half darks are quite visible.

In the above examples it is supposed that the plates have been well exposed.

The development according to the exposure, which should necessarily be taken into account, is exactly similar: When a plate is over-exposed the lights and half darks have nearly the same tendency to flash out, hence a developer weak in alkali, strong in pyrogallol, should be employed. On the other hand, if the plate be under-exposed—and by under-exposure we mean the minimum, for a plate which has been in reality under-exposed, never yields anything but a bad, white and black picture—then the half darks hang back, while the lights intensify rapidly under the action of the normal developer. Therefore, the plate should be treated as one from a model lighted with strong contrasts. In fact, under-exposure corresponds to such an exaggerated lighting.

* It has been recommended to place the model in a strong illumination and to light it with much contrasts, exposing then for the shadows. We do not advise this method, for the lights are, as a rule, solarized, *i. e.*, devoid of gradation.

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To resume :

Pyrogallol being the real reducing agent produces vigor and intensity.

The alkalies exalt the reductive property of pyrogallol and tend to diminish the contrasts.

As a consequence: the image develops slowly but with great vigor, when to the pyrogallol a corresponding small percentage of alkali is added; and, on the contrary, it appears rapidly in all its details, the high lights remaining comparatively weak, when the alkali is employed in great proportions. By excess the alkalies produce fogginess.

Besides the chemicals, sodium-sulphite and potassium-bromide are employed with the alkaline pyrogallol. The former, a deoxidizing agent, prevents pyrogallol tinging the film yellow by its rapid oxidation in presence of an alkali; the latter checks the development without stopping it. It acts, therefore, as a regulator. Its use is valuable both in cases of over and under-exposure. In the former case it tends to give clear shadows and vigor, in the latter it allows the plate to be submitted to a long development in order to bring out the details without danger of fogging the picture. Its chemical action is not well understood; its effect is to prevent the reduction of the silver bromide not acted on by light.

We have purposely given general directions without entering into the details of the developing process; moreover, it pertains but incidentally to the subject we have treated. For more complete instructions the reader is referred to special treatises.

XII.

In this last paper we merely wish to call the attention of photographers to a certain process to improve the negatives, for, no matter how well lighted is the model, the artistic effect is not rendered as it should be, owing to the insensitiveness of the ordinary chemical preparations to the less refrangible rays of light.

While speaking of the head and other screens we advised to have them made of a colored material. This has for its object not only to diffuse and regulate the light, but also to reflect on the model a feeble non-actinic color in order to obtain better gradation in the parts the most strongly illuminated, and to lessen the contrasts thereby. But this method, although much improving the lighting, is not sufficient to obtain perfect negatives, needing little retouching; moreover, for certain complexions, certain subjects, such screens are objectionable and should be replaced by others in light-blue or violet materials.

Every photographer knows too well that each ray of light impresses differently the photographic film, and that the colors are, in consequence, not reproduced with their luminous value, thus modifying the gradation from light to dark by forming half darks or darks where there should be lights or half lights, besides exaggerating the imperfections of the skin and even rendering visible spots not perceptible to the eye, necessitating therefore much retouching, which, however skillfully done, alters and spoils the resemblance. Indeed, it is a great *desideratum* to obtain negatives which require but little working up in order to preserve the texture of the skin and the delicate *modelé* of the human face, instead of giving to the living flesh that appearance of marble we see in nearly all the retouched portraits.

This can only be obtained by the process discovered by Dr. H. W. Vogel.

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To our knowledge this remarkable process—by which the most serious shortcoming of photography has been overcome—is not employed for portraiture. Why? It is difficult to say; and can only be explained by the routine to which every one of us is inclined in his occupation. However, the best results in this and the other branches of our art can be obtained solely by the ortho-chromatic process: it is the process of the future. Not by using for portraits plates so much stained, by a good deal, as those employed for the reproduction of oil-paintings for landscapes, etc., but prepared by diluting the baths usually made for the latter purposes.

We recommend an azaline and erythrosine mixture similar to that the late B. Obernetter employed for objects not containing much red, which Dr. Vogel describes in one of his interesting letters to the BULLETIN (Vol. XVII., p. 300).

The few experiments we have made in this direction are promising and leave no doubt in our mind as to the efficacy of the method. No yellow screen is needed, consequently the time of exposure is nearly the same as that required for the ordinary gelatine plates.

THE LAW AND PHOTOGRAPHY.

BY MR. MORRIS COOPER.

(*Continued.*)

(Read before the Photographic Section of the American Institute.)

IT is appropriate here to speak of

THE CONTRACT TO PHOTOGRAPH.

What does the photographer undertake to do when he engages to supply photographs? Does he contract to furnish artistic, pleasing, beautiful pictures, or accurate and faithful likenesses? I would not for a moment be understood as saying that the idea of the one excludes the other. But the point is, what does the customer expect, and what is he entitled to receive? It seems to me that the customer has a right to expect a good likeness, finished in as artistic a manner as the contract calls for. But this opens the door to a sea of controversy. What is a good likeness? Perhaps the sitter belongs to that unfortunate class in the community who cannot show you the family album without remarking that "they really never take a good picture, but that So-and-so always does." And then there are one's friends, cousins and aunts, whose opinion is of vital importance on the subject. A certain Mrs. Pearson, of London, was sued for the price of some photographs she had ordered. The photographer admitted that the negative had been touched up, but alleged that it was necessary in order to make customers look their best. The judge thought the photographs made the lady look younger than she appeared to be; but she, strange to say, protested against a flattering likeness. She wanted it perfectly natural. The case was submitted to the jury, and they, probably unable to comprehend so unusual a defence, brought in a verdict against her. Whether a painting or photograph is executed in the most artistic manner possible, only an artist or photographer can tell; but ordinary witnesses, the courts have held, are competent to say whether a photograph is a good likeness. In short, whether a photograph is a good likeness or not, will have to depend upon the particular jury before whom the picture is exhibited. As to the price of pictures, it has been held that if no special contract is made fixing his compensation, the artist is entitled to such pay as, taking all the circumstances together, his work is reasonably worth. The market price of such work would have to be determined from the evidence of photographers doing the same class of work. But a very important circumstance to be considered on such an inquiry, is, not only the real standing of such artist, but also his apparent worth as shown by his appearance, surroundings and general bearing. A case illustrative of this point recently arose in Michigan. The plaintiff

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was an artist, and from photographs, painted pictures of defendant's children. No agreement seems to have been made fixing the price for the work. The plaintiff demanded that the court should recognize as an element of his charges, the expense and preparation necessary to make a first-class artist, but the court did not see things just that way. It decided that if a man has really become eminent in his profession, and has a recognized standing, his compensation may by a customer be fairly presumed to be in the line of what eminent artists charge, but an obscure and unknown artist, getting a job for perhaps the first time, cannot demand from the customer so great a fee, for the reason that the customer has a right to expect that the charges will be in keeping with the artist's surroundings and general appearance. I confess that I am not in sympathy with this decision. I believe that it holds up a wrong standard. It seems to me that the principle which deems every laborer worthy of his hire is as applicable to art as to any other kind of work. A man should be paid for what he can and does do, and not for what he seems to be able to do. For improper and immoral pictures no compensation could be recovered. And this brings me to consider

Immoral and Obscene Photographs.

The manufacture and circulation of these is not only culpable legally, but is equally odious and detestable from the standpoint of true art. It is sometimes said that, in reference to this subject, the law is too straight-laced and prudish, but that this is not so, and that sound and sensible views are entertained by the judges before whom such matters have come for consideration, I shall endeavor to show by reference to a case recently decided in our own Court of Appeals. A man, whose name need not be mentioned, was convicted under our Penal Code for selling obscene and indecent photographs. It appeared that the photographs represented nude females, and were photographic paintings which had been exhibited in the Salon in Paris and one of them at the Centennial Exhibition in Philadelphia. It was decided that it was immaterial whether the pictures had been exhibited in these galleries or not. Now follow carefully the reasoning of the court. Judge Andrews, an exceedingly clear headed judge, said: "It is to be observed that the statute does not undertake to define obscene or indecent pictures or publications. But the words in the statute are themselves descriptive. They are words in common use, and every person of ordinary intelligence understands their meaning, and readily and in most cases accurately applies them to any object or thing brought to his attention which involves a judgment as to the quality indicated. It does not require an expert in art or literature to determine whether a picture is obscene or whether printed words are offensive to decency and good morals. These are matters which fall within the range of ordinary intelligence, and a jury does not require to be informed by an expert before pronouncing upon them. It is evident that mere nudity in painting or sculpture is not obscenity. Some of the greatest works in painting and sculpture, as all know, represent nude human forms. It is a false delicacy and mere prudery which would condemn and banish from sight all such objects as obscene, simply on account of their nudity. If the test of obscenity or indecency in a picture or statue is its capability of suggesting impure thoughts, then, indeed, all such representations might be considered as indecent or obscene. * * * * * * The test of an obscene book was stated in Reg. V. Hicklin L. R. 3 Q. B. 369, to be, whether the tendency of the matter charged as obscenity is to deprave or corrupt those whose minds are open to such immoral influences, and who might come in contact with it. We think it would also be a proper test of obscenity in a painting or statue whether the motive of the painting or statue, so to speak, as indicated by it, is pure or impure; whether it is naturally calculated to excite in a spectator impure imagination, and whether the other incidents and qualities, however attractive, were merely accessory to this as the primary or main purposes of the representation." I think the language of the court in this case is in harmony with the views of the majority of cultivated people on the subject.

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Photographs as Evidence in Courts of Justice.

The photograph is beginning to play an important role in judicial proceedings. It is a species of what is called secondary evidence. That is to say, it is to be resorted to in explanation and support of other evidence, or when no other evidence is available. It has been introduced in both civil and criminal trials. I shall cite a few typical cases. In the Buddensieck case, which, as you remember, was a prosecution for manslaughter caused by the falling of a building negligently constructed, a photograph of the premises showing the defective construction was used and exerted great influence in securing a conviction. In the celebrated Ruloff murder trial, an important link in the chain of evidence against the accused was forged by means of photographs which identified his confederates. On the trial of the Shepherd's Fold case, which was a prosecution for starving and ill treating a boy who was an inmate of the "Fold," photographs of the boy, showing the effect of the "Shepherd's" shepherding, landed the shepherd in the penitentiary.

An Iowa case presents some curious features. It was an action for damages for assault and battery. On the trial, which took place nearly two years after the assault, the defendant exhibited to the jury the plaintiff's back and shoulders, which, of course, after that lapse of time since the injury, could not exhibit any very great marks thereof. But the plaintiff, not to be outdone, then triumphantly exhibited photographs of the same back and shoulders taken three days after the assault. This must have been a case of diamond cut diamond. The plaintiff, however, was the sharper diamond, and was victorious in the suit. There is also the case of a Canadian lady whose husband was lynched in Alabama by a mob. He had sent her a photograph of himself, taken shortly after his arrival in that State. She brought a suit against the county where the little "accident" occurred for damages for the loss of her huband's life, and her whole case, which I am glad to say she won, depended upon the photograph, for her husband had been a stranger in the community, and by means of the likeness he was identified. In suits growing out of defects in highways, railroad accidents, forgery of commercial paper, disputed signatures, photographs have become valuable aids. But it must not be supposed that every photograph is received with open arms in a court of justice. The liability of photographers to err, to present partial, inaccurate, distorted, and even downright dishonest views, is well known to the courts and has often been commented on. In the Tichborne case, a photographer represented a place as a *grotto*, which in reality was nothing else than a path about a hundred feet long, shadowed by trees, having a public way on one side and a public towing path upon the other. The Lord Chief Justice (Cockburn) presiding at the trial handled it without gloves. He said: "I must add that it reflects the greatest discredit on the man who concocted that photograph." That is not with any disparagement to the art itself, for in the same case the art of photography rendered most valuable help. "The principal documents in the case," says the *London Times*, "the pocket-book of the defendant, his letters and those of Roger Tichborne, were photographed by the Stereoscopic Company, under the auspices of Mr. Nottage, their manager, and the *fac-similes* thus produced were of immense value in facilitating the comparison of handwriting, to which the Lord Chief Justice attached much importance as one of the great tests of identity." A very valuable aid which the photograph is enabled to render in courts is to make copies of documents which, from their value, inaccessibility, or other peculiar features, cannot be produced in court. In several such cases the courts have directed the making of photographic copies.

It must be borne in mind, from the considerations to which we have before alluded, that photographs are very carefully scrutinized in courts of justice, and that the party desiring to use them must always be prepared fully to show all the circumstances under which they were taken, who the artist was, with what apparatus, in what light, from what point of view, at what distance, at what angle—in fact, must be prepared with all the details. He should also produce the negative, so

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that that also can be subjected to rigid examination. Not until a photograph is "proved," as it is termed, is it competent to be admitted in evidence.

Legal Uses of Photography.

There have been numerous applications of photography to the purposes of justice. The rogue's gallery is familiar to you all. Not in any invidious sense, of course. Some suggestions which are of value, and some which are not, have from time to time been made respecting further applications of the art. One ingenious gentleman has invented an apparatus for recording deeds by photography. One has suggested that by photographing the impressions made upon the retina of the eyes of a murdered person, a possible clue might be obtained as to who the murderer was. Another proposition is to appoint a public photographer, whose duty it should be to take and preserve the likeness of all persons residing in England every five years, and also likenesses of all persons leaving the country. This is what, in politics, would be called a "fat" job. So it has been proposed that naturalized persons should have photographs of themselves attached to their papers, certified by an omniscient individual to be styled the "official photographer." Another idea is to photograph the witnesses deposing in trials, so that the pictures will be before the appellate court when it passes upon their testimony, and it could then see the witnesses both in tranquil and in excited moods. Still another proposition is to photograph riotous assemblies at various stages, and then subsequently prosecute the persons taking part. The difficulty, however, about this, is that there is a very decided danger that the photographer and his apparatus might, perhaps, perish in the riot long before he succeeded in getting a focus. The most practicable suggestion of this kind which I have met with is one to appoint a public photographer, who, in all cases of homicide, shall immediately repair to the scene of the crime and photograph it and the body. In this way very valuable evidence might be elicited. For the other suggestions and plans I do not think that legal machinery is as yet sufficiently advanced.

GETTING A CAMERA INTO CANADA AND GETTING IT OUT AGAIN.

BY J. B. BARLOW.

I had many misgivings about taking my camera into Canada in the first place. You see, my wife and myself intended making a trip to Alexandria Bay among the Thousand Islands, staying there for a week or ten days, when we would be joined by my brother and his wife and we would then proceed down the St. Lawrence as far as Quebec. Of course I would take my camera—and to take it direct to Alexandria Bay, N. Y., from Grand Rapids, Mich., would have been simple enough, as both places being in the United States the box would go through "in bond," and that would be the end of it; but, as luck would have it, I was born in Canada—in a pretty little village ten miles from Dundas (Dundas is a picturesque little town on the Grand Trunk Railway, near the western end of Lake Ontario), and as I had never seen my native town or village since I, but a youngster of ten, my parents, brother and two sisters had left it twenty-five years before—I was glad enough to make it part of our programme to pay a short visit and catch a few views of the scenes of my childhood. Well, I began inquiring among my friends and acquaintances, then among the railroad men, Collector of Customs, etc., until, finding the farther my inquiries reached the less reliable information I received, I wrote direct to the Collector of Customs at Windsor, stating my position. I received a reply at once which set all my fears at rest. I was to show his letter to the inspector on the train at troit and he did not doubt but that my camera could accompany me to

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Hamilton, where, by again showing the letter to the custom officers in that city, I would be allowed to depart with it whither I pleased, etc.—simple enough—and so we started. That was the beginning—or you might say the preface, for the real beginning was when we reached Detroit. Our sleeper went through from Grand Rapids to Hamilton, and we reached Detroit about twelve o'clock at night. The car door opens. Canadian Inspector of Baggage: "What have you got? Anything dutiable?" I tell my story as hurriedly as possible, pull out my letter, which "his royalty" glances over, reads a line or two and says: "You'll have to go into the baggage car with me; just get ready while I go through the car and I will come for you." This is the commencement. I tumble into my clothes and am soon, in a semi-dressed condition, with camera in one hand and tripod in the other, following his royal "nibs" to the baggage car, where I soon discover nothing is to be done in my case, I being simply brought here to be under surveillance, as it were, until the cars are transferred across the river and reach Windsor, when the baggage-master must decide the fate of the camera. The "agony" is soon over. The Custom Inspector escorts me to the baggage room, the story is told, letter produced. The baggage-master I should imagine had eaten nails for supper and was in no mood to be trifled with by an amateur photographer. The camera should go forward next day as baggage. A check was given to me. "Where would I get it?" "At the Custom House." "When would I get it?" "Oh, I don't know, it will go forward to-morrow." Just then the inspector noticed the tripod. "What's that?" he asks. "Tripod," I reply. "Can you take pictures with it!" he grins. "Well, not to any great extent," I reply. "Very well, you can take it along with you." "Thanks, awfully," I rejoin, and catch onto the train as it moves off into Canada.

Seven-thirty o'clock A.M. the next morning finds us alighting from the train at Hamilton—it is a splendid morning—we ride up to the Royal Hotel in about the oldest, shakiest rattletrap of a hack we believe they could scare up, and the thought goes through my mind that when a youngster of four or five years of age, my father brought me down to this self-same City of Hamilton to see the "Prince of Wales." That was when he made his tour through this country about 1860, and we happened to get in the middle of a dense crowd of thousands of surging and shouting loyal subjects, through which the carriages of the Prince and his train were slowly forcing their way. The jam at length became so great that the procession came to a halt, when I found myself forced bodily up against the wheels of the carriage in which sat the royal personage. In the crush I had lost from my head a brand new hat bought for this express occasion, and I can still remember the laugh with which Prince Albert greeted my sudden yell of "Oh, pa, I've lost my new hat; I've lost my new hat." It was very evident I took much more interest just then in my "new hat" than I did in the (perhaps) future King of England; and now in 1888 I cannot help wondering if by any chance we should be riding to breakfast in that self-same carriage in which sat his royalty—twenty-five or thirty years of constant use would, I imagine, leave the carriage in just about the condition of this old specimen. By 8.30 we had finished our breakfast and soon found ourselves climbing three flights of stairs at the Custom House. At the top we find a grand looking old man (the janitor, by the way), to whom I rehearse my story. He ushers me out into a wide hall whose windows overlook a court with a low brick building on the opposite side. "There is where your

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bundle will land, when it does land, probably by 10 o'clock. You must go in there" (here wheeling me around into another hall and pointing out a big door with "Customs Surveyor" painted thereon), and so we depart to stroll around the really fine little park called "The Gore," so named, no doubt, on account of its shape. Time 10 A.M. Enter my wife and myself with due reverence into the presence of The Inspector of Duties (where the camera is expected to land), and after sundry and more explanations, are told the camera won't come by express but by baggage; and then I remember the baggage-check given me at Windsor. I fish it out—No. 29,565—and we are directed to go to the Surveyor of Duties. This tallies with the directions given me by the grand old janitor, so around the corner we gracefully glide and again climb the three flights of stairs before mentioned, and present the check to the Surveyor, only to find that no report of camera has been received as yet —probably will be in at 3.50 P.M. We begin to get a little anxious, particularly as we know our Uncle, at whose home in Rockton we are to stay a few days, is waiting for us all this time back in Dundas, five miles away, where we wrote him to expect us about 9 A.M. Dundas, understand, is on the same line of road as Hamilton, and we came through the town in the morning; but not being a very large place, the fast morning train does not stop, so we intended taking a train back which would have landed us there as we say—about 9 A.M.

(*To be continued.*)

THE THIRD ANNUAL JOINT EXHIBITION.

THE joint exhibition of the societies of Philadelphia, Boston and New York, which is to be held in the Academy of Fine Arts, Philadelphia, from April 8th to 20th next, will be under the following regulations and rules:

The entire number of awards in the exhibition is left to the discretion of the judges, but shall not exceed twenty-five. Seven of these shall be for special excellence, one in each of the following classes:

Landscape or Marine Views.

Portraits.

Genre Subjects and Figure Compositions.

Enlargements.

Lantern Slides (set of six—negative and positive by exhibitor).

Applied Photography—Scientific or Technical.

Work by Ladies.

Awards may be made for an entire exhibit or for any part thereof.

All photographers are at liberty to compete, but the judges are instructed to give preference (other things being equal) to work done entirely by the exhibitor.

The members of the Board of Judges shall not compete for awards, nor be connected in any way with the management of the exhibition.

The decision of the Board of Judges shall be final.

Rules.

1. No picture which has once been exhibited in competition at a Joint Exhibition shall be again admitted for competition.

2. No picture will be received "for exhibition only," unless by special consent of the Committee of Arrangements.

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3. No pictures which have taken prizes elsewhere shall be so designated, until after the awards have been announced.

4. All pictures, except those from foreign exhibitors, must be framed (with or without glass, at the option of the exhibitor). Pictures from foreign exhibitors should be sent by mail, unmounted. They will be mounted for exhibition by the Committee of Arrangements, free of charge, or will be framed if the proper amount to cover the cost is remitted with entry.

5. The Committee of Arrangements shall have the right to reject the whole or portions of any exhibit offered; and if in order to fairly apportion the space at their disposal among the various exhibitors it becomes desirable to leave any pictures unhung, the rejections shall be made at the option of the committee, either from exhibits below the average in quality or above the average in number of pictures or wall space required.

6. Entries of all exhibits must be made in duplicate, on blanks issued by the Committee of Arrangements, giving, for catalogue purposes, etc., information on the following points:

Number and size of frames.

Amount of wall space required.

Total number of pictures.

Subject or title of each.

Lens and plate used for negative.

If for sale.

Price.

Name, address, and society of exhibitor.

7. The exhibitor's name and address, also a number corresponding to the descriptive number upon the entry form, shall be clearly written on the labels provided, which shall be attached to the back of each frame.

When two or more prints are mounted in one frame, a designating letter shall be placed under the centre of each print, and all letters so placed shall appear in the entry form opposite the title of their respective pictures. Nothing else may appear in front of frame except title of picture and exhibitor's name.

8. No picture may be withdrawn before the close of the Exhibition.

9. All pictures must be sent at owner's risk, prepaid and delivered to the Committee of Arrangements at the place by them indicated, and return charges collected by carrier.

10. The committee will not be responsible for any loss or damage that may occur to exhibits while in its charge, but will use all reasonable care to prevent such occurrence; and at the close of the Exhibition will repack each exhibit and ship as directed by the exhibitor.

11. Advertising in any form in connection with an exhibit is strictly prohibited.

12. A charge shall be made for wall space at the rate of twenty-five cents per square foot (the minimum charge being one dollar) to all except members of the three societies and foreign exhibitors.

The amount of charge for wall space must be enclosed with entry form to the Committee of Arrangements.

If any of the pictures entered are not hung, a due proportion of the charges will be returned.

A commission of ten per cent. on all sales will be retained.

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13. Arrangements shall be made for the proper exhibition of lantern slides on the screen.

14. The Committee of Arrangements, acting for the local society, shall receive all income and make all payments for expenses of the Exhibition, the said committee being required to turn over to the local society, within a reasonable time after the close of the Exhibition, properly authenticated vouchers for all expenditures, together with a statement of receipts, and the balance on hand, if any.

Entry forms and labels for back of frames will be furnished on application. Please state probable number of labels required. (See rules 4, 6, 7 and 12.)

All correspondence should be addressed to Robert S. Redfield, Secretary, 1601 Callowhill street, Philadelphia, Pa.

All pictures must be sent, charges prepaid, addressed to

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA,
Care of the Pennsylvania Academy of the Fine Arts,
BROAD AND CHERRY STREETS, PHILADELPHIA, PA., U. S. A.

And delivered before 9 P.M., Monday, March 25, 1889. The attention of foreign exhibitors is directed to Rule 4.

It is intended that the exhibition shall be open day and evening, Sunday excepted, and several evenings will be devoted to the display of lantern slides.

The names of the Judges and further details will be announced hereafter.

While ample space is at the disposal of the committee, it is desired to maintain a high average standard of excellence. Intending exhibitors are therefore requested to send a few *choice* examples of their work rather than a large number of specimens of only ordinary merit.

It is probable that at the close of the Exhibition, by request of the Boston Camera Club and at their expense, the entire collection of pictures will be forwarded to Boston, there to be publicly exhibited for a brief period, and thence returned to their owners. Any exhibitor not consenting to this arrangement will please give notice to the Committee of Arrangements upon entry form.

Committee of Arrangements.

JOHN G. BULLOCK, *Chairman*,
528 Arch Street, Philadelphia;
ROBERT S. REDFIELD,
SAMUEL M. FOX,
} *Photographic Society of Philadelphia.*

H. T. DUFFIELD, *Society of Amateur Photographers of New York.*
EDWARD F. WILDER, *Boston Camera Club.*
PHILADELPHIA, January 15, 1889.

AMATEURS—PROFESSIONALS.

BY P. E. W.

Is it not time to have a clear definition of the distinction between an amateur and professional? There are numberless persons in this city who are sailing under false colors. They claim all the power, influence and immunities of the amateur and yet are professionals in every sense of the word. Indeed, there are many persons in our great manufacturing establishments who are classed as professionals, because these contain photographic goods made in their works, who better deserve the name of amateur than some of these amateurs.

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Perhaps the photographic world may, with profit, take a lesson from athletic circles and adopt the distinction which the latter have made. There the amateur is one who has never competed for money prizes, nor competed with men who have competed for money, nor trained men for money, nor in any way made money out of his athletic power or knowledge. In a word, just as soon as he uses his skill for money-making or brings himself to a level with the money-making professional he becomes himself a professional.

Now as long as the amateur societies have shown a desire to be strict in this matter let them apply the rule justly. Let any man who makes money out of photography take his proper position as a professional. No matter whether a man sells a dozen prints, patents a ground glass substitute, or sells an invention to a stock house on the sly, he is to all intents and purposes, and should take his proper place as a professional. Perhaps one of the most offensive features of these sham amateurs is the fact that they usually out-Herod Herod when anything is said about allowing some man with a doubtful position to become a member of some amateur society. His connection with the profession may be very remote and he may practice the art from pure love, never selling a print or deriving a penny's advantage from this knowledge of the art. Yet the outcry against such men is very strong, and they are made to feel that their presence as members of an amateur society would be most unwelcome.

Now there can be no harm in this very strict ruling. Perhaps there may be an advantage in it. But in any event justice requires that the athletic rule should be enforced. And all who derive an income from photography, whether it be large or small, or be paid in money or in kind, should be classed as professionals.

This would be a double advantage. It would make the beginner hesitate before he began to sell prints or negatives. The amateur of long standing would not rush to the patent office or to the stock house as soon as a good idea came into his head. It would relieve the professional to a very great degree from the unfair and always irritating competition of the so-called amateur. The latter, when desiring to step across the line and reap the advantages of income from his work, would then find that he had crossed a real and not imaginary boundary. The old proverb about having and consuming the cake would become a living fact well worth his consideration.

It is devoutly to be hoped that the managers of all our photographic societies, both amateur and professional, will give this subject careful attention, and take immediate action which shall clearly define the status of both amateur and professional, and cover these points, which have hitherto been almost entirely overlooked.

AMATEUR EMULSION MAKING.

BY E. H. LYON.

[Lecture delivered before the Boston Camera Club, December 10, 1888.]

(*Continued.*)

THE ripening of an emulsion appears to cause an organic change in the structure of the gelatine after digesting or cooking, which brings about a granular condition. I would describe it as a mealy condition. Herein lies the extreme sensitiveness of a gelatine emulsion. Out of perhaps twenty different ammonia formulas, nothing is said about the method of making the first A

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solution further than to combine the ingredients; and yet I find it is very important; the resulting emulsion depends for its speed and excellence very much upon these first steps. For instance, if I heat the water and the bromide to a high temperature, and then add the gelatine dry, it will dissolve in a few minutes; but the emulsion will not be as rapid as when it is allowed to swell slowly and then dissolve at a very low temperature. I consider 100 degrees as high as it is safe to go with a gelatine solution that contains alkaline bromide. I use a pair of cheap scales, which are sold at the stock house; a piece of tissue paper should be used to weigh out each ingredient upon, throwing it away so that there may be no contamination; and it is very necessary in dry plate making that everything shall be scrupulously clean.

In regard to distilled water: I have made a great many emulsions with the ordinary tap water, and I find that it answers the purpose very well, but still, at certain times, it will not give good results, although you may make a great many emulsions with it and not have any trouble. The ordinary tap water will sometimes contain iron and sodium, or there may be some trouble with the pipes, and if you make a poor emulsion it is very valuable to know what is responsible for the failure, and if the water is right to start with, of course you can look elsewhere for it. Snow or ice water would be preferable to tap water, but as you use such a small quantity any way, for every 100 grains of silver only 2 ounces, it is better to obtain distilled water and use that only. The washing of the emulsion may be done with tap water.

Now, as I said before, temperature is a very important thing, and if the formula says 100 degrees, do not allow it to be as high as 110, for gelatine has been well called an unruly beast.

In order to keep the emulsion at a uniform temperature while digesting use a small chemical stand provided with movable rings. The water bath may rest upon one of these, and, with a little practice, you will know about how far above the lamp it should stand in order to keep the water at 100 degrees. Of course the temperature of the room has something to do with that.

I would recommend the amateur dry plate maker to make small batches. Forty-five grains of silver will coat about a dozen 5 x 8 plates, and that would be as many as you would care to make at one time. And another thing, it is not possible to make two batches exactly alike. No amateur could do that I do not think the manufacturers can do it, and the best way to secure an average speed in emulsions is to make a number of small batches and combine them. With four or five small batches combined, just before coating, you will get an average speed that will not vary much. You may have a number of batches ripening all the time. When you want to make a few plates of an evening, take a teaspoonful from each glass and melt together.

Only photographic gelatine should be used. This has been cleansed of fatty matter. Nelson's No. 1 soft and Heinrich's or Winterthur hard gelatine are the best. Hard and soft gelatine may be cut up fine with scissors and kept in tin boxes for use. Gelatine should never be dissolved by adding it dry to warm, ripened emulsion. It should first be allowed to swell for a few minutes and then dissolved at a low temperature. The last addition of gelatine to the emulsion, after washing and remelting, should never exceed what is necessary to cause it to set. The amount of gelatine in the emulsion should be such that when a drop placed upon a strip of glass is held against a piece of ice to set, it will have a

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cheesy consistency when pressed with the finger. If it sets tough like rubber add water. I use equal parts of hard and soft gelatine all the year round for the final addition. Enough should be added to bring the total amount of gelatine in the finished emulsion up to 30 grains to the ounce.

The final addition of hard and soft gelatine having been made to the ripened emulsion, we proceed to filter it. Obtain an Argand chimney, which is simply a tube of glass about 7 inches long by 1½ in diameter. Upon one end of the chimney stretch a piece of chamois skin (not sheep skin) which has been dampened with water. Two or three turns of a strong rubber band will hold the chamois skin on. Warm the tube over a lamp, pour in the emulsion, then, placing the mouth close to the open end, blow vigorously and the emulsion will be forced through.

The emulsion is now ready for coating. We next want some clean glass plates of the desired size. We may use old or spoilt negatives over and over again by thoroughly cleaning them.

After the old plates stand in a strong solution of washing soda which is pretty near the boiling point, for ten or fifteen minutes, then with a small scrubbing brush the films may be easily removed. By placing small clippings of wire or tin on the edges of the plates, they will be prevented from sticking together while in the soda solution. Have three basins of clean hot water handy, rinse the first plate in each immediately after removing the film, and stand in a rack to dry. When dry, polish the side to be coated with a piece of chamois skin moistened with alcohol upon which a little white has been dusted.

A level surface upon which to allow the gelatine film to set is the next requisite. A slab of marble or slate will do for this. It may rest upon three screws set in the table or bench. A small spirit level should be used in adjusting it. The slab should be as cold as possible when used. A little chopped ice may be allowed to stand upon it for a half hour previous to coating, or it can be chilled in a refrigerator. It is important to have the film set as soon as possible after coating, as the sensitive bromide will have a tendency to settle down from the surface of the film, making long development necessary in order to get density. It also decreases its sensitiveness. The best method is to place the freshly coated plate upon a perfectly level shelf in a refrigerating box, but this is not absolutely necessary.

Plates larger than 5 x 7 seldom have a perfectly plane surface, being more or less "dished." The emulsion should be poured upon the concave side and the four corners pressed down by weights before the emulsion has time to set. Of course a small spot on each corner has to be sacrificed when this is done, but plates having considerable curvature can thus be coated with a film of uniform thickness. As soon as the film sets, which it should do in three or four minutes, place the plate in a rack in the drying box. Use about one and one-half drams of emulsion to a 4 x 5 plate. A little practice will enable the amateur to pour about the right quantity upon the center of the plate without measuring. Guide the emulsion with a glass rod to the edges. Hold the plate on the extended fingers while coating, rocking it gently until the emulsion has spread uniformly. If the temperature of the room is below 65 degrees, the pile of clean glass should remain near a stove, or in a warm place long enough to take off the chill before coating, but the plates should never be appreciably warm to the touch. The drying of the plates will be a serious trial to the patience if the proper arrange-

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ments are not made. The best drying box for the amateur should be made of a tin cracker or cake box. A tinsmith will put on an extra rim, which will make the cover light-tight. To each end of the box attach a 3-inch tin pipe, having at least two elbows to serve as light traps. Arrange a shelf or stand for the box near a chimney and connect one pipe with the flue. A strong draft of air will pass through the box. The inside of the box and pipes should be blackened with a mixture of lamp black and alcohol, containing just enough shellac to keep it from rubbing off. By placing the ruby lamp, or any lamp, under the horizontal inlet pipe a few inches from the box, the air is slightly warmed, and the drying is hastened. Do not let the temperature in the box exceed 80 degrees, or a tough, glassy film will be the result. The plates should stand in a rack in the direction of the draught, and at least three-quarters of an inch apart. A batch of plates will dry over night in such a box. They should dry with a mat surface, and will show no drying marks if the emulsion has been thoroughly washed and the draught is strong. A piece of mosquito netting smeared with a little glycerine or molasses and made to cover the open end of the inlet pipe will prevent dust from entering the box. This precaution is hardly necessary if there is no carpet upon the floor. As the amateur will probably make his plates in the evening, any room may be used that can be kept dark; but I advise him by all means to have a room, such as an unused chamber, attic or store-room, where he can leave his bench, chemicals, glass-ware and drying box in dark and inviolate seclusion during the day. A good dark room is of course the best place, although if very damp the plates will dry slowly. Extreme care is necessary not to contaminate the emulsion with any of the chemicals used in developing. There is a great difference of opinion in regard to the use of iodide in emulsion, and this is due to the fact that slight changes in manipulation where it is used produce such widely different results. My own method of using it has given excellent results. In the first place I find that 3 to every 100 grains of silver is as much as it is safe to use. I generally use about 2 grains.

Follow the formula previously given until ready to add the silver to the bromized gelatine; before doing so, add to the latter 1 dram of a solution of iodide of potassium containing 8 grains to the ounce. Do not shake the gelatine solution until you begin to add the silver. Proceed as directed in previous formula until the emulsion has digested at 100 degrees F. for one-half hour or until the blue stage is reached; then add 15 grains of swelled soft gelatine with which 10 drops of ammonia has been mixed just before using. When this has dissolved pour the emulsion into a dish to cool, but do not wash at once. Let it stand from ten to twenty-four hours. Then wash it, remelt and ripen for one day or more. This is a very rapid emulsion, giving fine negatives of portraits, interiors or landscapes.

In the above method the bromide has a firm hold upon the gelatine before the iodide is added. If the bromide and iodide are added together, a modification of the double salt is produced, which requires long digestion and is very hard to develop and fix.

I LOOK for and expect the BULLETIN every two weeks, just as much as I do my food. J. W. PARKS.

I HAVE been more than pleased with the BULLETIN and wish it all the success it so richly merits. C. H. HABERER.

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OUR ILLUSTRATION.

THE pretty photogravure with which we illustrate this issue of the BULLETIN is from a negative sent to us by Mr. Julio Pou, of St. Domingo. The subject is one of those bits of nature that we all love, and may serve as a *motif* for some of our amateur picture makers.

PHOTOGRAPHY ON WOOD.

THE *Revue Photographique* gives the following directions for photographing upon wood. Take:

Gelatine	8 grams.
White soap	8 "
Water	500 c. c.

The gelatine is allowed to swell, dissolved on a water bath, and the soap is added to it gradually, stirring all the time. The mixture is filtered through muslin, a little zinc white added to it, and then rubbed well into the wood to be used and left to dry. The film should be as thin and equal as possible. The following solution is then applied to the wood by means of a broad brush:

Albumen	30 grams.
Chloride of ammonia	1.2 "
Citric acid	0.2 "
Water	24 c. c.

Whip the albumen to a froth, let it settle, and add (in order) the water, the chloride of ammonia and the citric acid. When dry, this film is sensitized by pouring on the following solution and spreading it with a glass rod:

Nitrate of silver	3.2 grams.
Water	31 c. c.

Pour off any excess of the sensitizer and allow to dry again. Print as usual. It is not necessary to overprint. When sufficiently exposed, hold the printed surface of the wooden block for three minutes in a weak solution of salt; in this the print will become slightly paler. Wash, and fix for four or five minutes in a concentrated solution of hyposulphite of soda. Wash again for ten minutes in running water and dry.

I CANNOT get on without the BULLETIN. W. A. MORSE.

WHILE interested in photography I feel I cannot get on without the BULLETIN. G. HENRY SHEARER.

ITS course is ever onward and upward in the science of photography. P. O. TERHEUN.

PLEASE renew my subscription to the BULLETIN for another year. It is improving every year. A. P. HALLOCK.

I HAVE been a constant reader of the BULLETIN for the past two years, and have gleaned a lot of information from it. N. A. CHAMBERLAIN.

THE BULLETIN is one of the photo publications I never think of doing without. Have taken it from the first number. W. H. LOCKHART.

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ANTHONY'S
Photographic Bulletin.

EDITED BY

Prof. C. F. CHANDLER, Ph.D., LL.D.,
Aided by ARTHUR H. ELLIOTT, Ph.D., F.C.S.
and a corps of practical assistants.

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Advertisements should reach us not later than the Saturday preceding the issue for which they are intended, otherwise we cannot promise to publish them in the succeeding number. It is also necessary to notify us of any alteration before the date above mentioned, and to state for what period the advertisement should be continued—whether for one, six, twelve or twenty-four issues.

E. & H. T. ANTHONY & CO., Publishers.

THE AMATEUR PHOTOGRAPHIC SOCIETY OF BALTIMORE.

THE first monthly meeting was held at the Physiological Laboratory of the Johns Hopkins University instead of the rooms of the society. The *President*, Mr. I. T. NORRIS, in the chair, stated that the meeting had been called at the above place for reasons that would be explained later on, and he suggested that the regular routine business be dispensed with and only matters of importance be taken up, and this on motion was adopted.

The minutes of the last meeting were not read and the roll-call dispensed with, but there were present about twenty-two. The following were elected members of the society: Professor G. L. Smith, James Sykes, Harry Strokhead and Reinold H. Eighner; and applications were received for membership from Mr. Devlin and Mr. A. S. Murry, which were referred to the Executive Committee to report on at the next meeting. The resignation of Mr. G. N. Hunting was read and on motion accepted. The *President* then stated that we were present at the request of Professor A. H. Rowland, who would give us a talk on the solar spectrum, and that he could explain and demonstrate better at the University than at our meeting rooms.

Professor Rowland was then introduced, and afterwards explained that the spectrum was a highly polished metal surface composed of copper and pure tin, with infinitesimal parallel lines traced on its surface with a diameter of about 20,000 to the inch, and by which the rays of the sun or the flame of metals are refracted, thus forming the spectrum. The spectrum was then thrown on a screen by means of an oxy-hydrogen light, and we were shown all the colors of the rainbow, viz.: violet, indigo, blue, green, yellow, orange and red. Photographs of the spectrum were then thrown on the screen and the dark lines fully explained, as also the lines and colors of various metals, and the similarity of the lines and colors of the spectrum of metals to that of the solar spectrum, thus demonstrating the composition of the planet of light.

After these things had been fully explained an adjournment was made to the basement, where with much interest the members inspected the delicate little machine ruling 20,000 lines to the inch, and with a capacity of 40,000 lines, said to be the only one in the world capable of making 40,000 lines to the inch. Thence to the upper floors, where were shown shelves and closets filled with chemicals and costly apparatus for photography. Then to the dark rooms and to the rooms where are made the sensitive plates used in photographing the spectrum. Next, the refrigerator for keeping at a cool and even temperature the emulsions. Then the coating slab and the drying boxes, all of which were fully explained by the Professor, and critically examined by the members with wondrous interest.

We were then shown the rooms in which the spectrum is photographed, and the explanation was of absorbing interest to all. Here we saw how the flames or vapors of a metal, fused by a powerful current of electricity, are photographed. Bars of copper, iron and other metals were melted as though of wax, and so rapid was the combustion that the noise was similar to the rattle of musketry or small arms, and was trying to both the eyes as well as one's nerves. After many other matters were explained, a hearty vote of thanks was given to Professor Rowland for his kindness to the members.

No further business, the meeting adjourned.

HARRY C. WILLIAR,
Secretary.

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AMERICAN INSTITUTE — PHOTOGRAPHIC SECTION.

CLINTON HALL,
19 Astor Place, New York.

REGULAR MEETING, FEBRUARY 5, 1889.

President NEWTON in the chair. The *Secretary* reported that he had received for the section a copy of the "Photographer's Society Reporter," "Photographic Eye," and the last number of Anthony's BULLETIN. He also read the following:

PHOTOGRAPHIC SECTION,
AMERICAN INSTITUTE.

DEAR SIRS,—We take pleasure in sending to-day a copy of Vol. XIX of Anthony's BULLETIN for 1888, which we would ask you to accept with the compliments of the publishers.

Yours very truly,
E. & H. T. ANTHONY & CO.

A vote of thanks was tendered to the publishers for all of the above named, and the chairman of the Executive Committee then reported the following as the programme for the next regular meeting, March 5th:

"The Early Days of Photography, with examples of its literature, apparatus and pictures; also many pleasing reminiscences by some of the oldest members of the craft."

President NEWTON then introduced Dr. Roberts, who read a paper on "Flash-Light Photography as connected with Surgery and Medicine." This paper was listened to with marked attention and interest, and this interest was fully sustained in his subsequent experiments, illustrations and explanatory remarks. In this part of the work, Mr. O. G. Mason acted as his assistant, and Mr. Bedford as operator of the stereopticon.

At the conclusion a hearty vote of thanks was tendered to these gentlemen, and the section then adjourned.

LYNN CAMERA CLUB.

THE club held a special meeting January 15th, at which it was voted to make a set of negatives illustrating Lynn and adjoining places of interest, including Swampscott and Nahant, from which to make lantern slides, and with a written description of same, to be loaned to other photographic clubs in exchange for similar sets. It was also decided to hold an informal exhibition of prints at an early date, for which each member will be requested to furnish at least two prints for competition, and as many more for "exhibition only" as they please. A few negatives made on the new Carbutt films were shown by one of the members. They were equal to glass and very light.

After the business meeting a few lantern slides, made by members of the club, were shown on the screen, followed by a very excellent exhibition of slides made by W. S. Briggs, of the Boston Camera Club. Mr. Briggs' slides were a rare treat for the members present, and they were unanimous in passing a vote of thanks to that gentleman for his kindness in loaning them.

The committee reported a number of demonstrations, and the like are booked for future meetings, and expect to see a marked increase in photographic interest this season. There will probably be an outing for the club on the 22d of February, weather permitting.

A SPECIAL meeting was held January 22d, and the application for active membership of E. W. Pecker was acted upon, and he was unanimously elected. After a short discussion in regard to the exhibition that is to take place at the February meeting, all lights were turned off, with the exception of a large red lantern, and a demonstration in making both dry plates for transparencies and lantern slides, known as the coffee or tannin plate process, was given by the President of the club.

The process, without going into the fine details, is as follows: A clean glass plate is coated with a solution of white of one egg dissolved in 40 ounces of water and dried by heat; when dry the plate is flowed with collodion; the plate is then ready for the sensitizing bath, which is a 40 grain silver solution, strongly acid. The plate remains in this bath until all the greasy lines disappear. It is then put into a dish of distilled water and allowed to wash a few minutes, in order to remove the free silver. From the distilled water, after being rinsed in plain water, the plate is put into the preserving bath, composed of a large teaspoonful of coffee dissolved in 10 ounces of water, where it is allowed to remain about three minutes and is then dried by heat. When dry the plate is ready for use, and may be kept the same as any dry plate or used at once as desired. One of the plates was exposed and developed with the pyro-silver developer, and gave a very brilliant positive, with exceedingly clear high light. After thanks to the President for the evening's entertainment the meeting adjourned, subject to call of the Secretary.

There will be another demonstration in plate-making, showing how to make emulsion plates, at a future meeting.

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AN informal exhibition of prints was held on Tuesday evening, February 5th, and although the time given for the preparation of the pictures was very short, the quality and number shown was far ahead of the most sanguine expectations of the committee. There were about 120 prints in all, consisting mostly of 5 x 8 and 6½ x 8½ pictures, mounted on 11 x 14 mounts, and is a very fine collection, especially for so young a club, as most of the members are beginners with very little experience. Some of the prints are exceptionally good.

In the competition class only two prints were allowed to each member.

Mr. Hoyt showed views at Wood's Holl, Mass.; Mr. Coates, views on Ricker Mountain; Mr. Bacheller, an interior and a flash light; Mr. Darcy, a Lake George view and one at Howlet Pond; Mr. Russell, an instantaneous view on Flax Pond and one at the Marblehead fire; Mr. Rogers, pond at Middleton and Porte-Cochere at E. V. R. Thayer's house; Mr. Breed, an interior and residence of Mr. Sprague; Mr. Pecker, bromide print of Biddeford Pool, and transferrotype print of old mill. Mr. Fox, an old saw-mill and a mountain view; Mr. Drew, wood interior on Paradise road; Mr. Jeffers, instantaneous surf views; Professor Thomson, base-ball game and Jackson Falls, N. H.; Mr. Porter, a hanging scene and a mountain brook.

Each person present was given a chance to vote on the merits of the pictures and the result shows that they must have been very nearly of equal value. Mr. Darcy's Saugus view, a number of cows at Howlet Pond, Mr. Rogers' picture of the porte-cochere of E. V. R. Thayer's house and Mr. Bacheller's interior tied for first place. Mr. Darcy's view at Lake George, Mr. Coates' view on Ricker Mountain and Mr. Pecker's bromide print of Biddeford pool tied for second place. Mr. Russell's view on Flax Pond and at the Marblehead fire, Mr. Bacheller's flash-light—two gentlemen playing cards, Mr. Rogers' view of a pond at Middleton, Mr. Fox's view of an old saw-mill, Mr. Drew's wood interior on Paradise road, and Professor Thomson's base-ball game at North Conway, N. H., tied for third place.

Each person who voted was instructed to place the number of the picture they thought was the best on a card and drop in the box. The result shows that those present settled on thirteen different pictures as being the best in their estimation.

Aside from the competition pictures Mr. Darcy showed some thirty or forty views of Lynn, Lake George and the White Mountains. Professor Thomson showed views of the Marblehead fire and other points of interest. One pair that attracted considerable attention was labeled "Sunshine and Storm," being the picture of a little child sitting in a high chair, in sunshine, looking as pleasant as you please, and in storm yelling at the top of his voice. Mr. Rogers showed some architectural and interior views. Mr. Jeffers showed some instantaneous views of the surf at Swampscott beach. Mr. Pecker showed some bromide prints and transparencies. Mr. Drew showed some views of Lynn residences and transparencies. Mr. Russell some views of Medfield road, Woburn, Library and a Study from Nature. Mr. Bacheller, a panoramic view of the Marblehead fire, some detective shots on the Hudson River and a few Nahant views, also a few transparencies. Mr. Fox showed some mountain views and Mr. Coates some Vermont views. The prints are to be left hanging until the next meeting, and all who wish to see them can do so by application to any member of the club. The exhibition was declared a complete success, and any one wishing to see a good collection of photographs should gain admission to the rooms.—*Lynn Paper.*

J. W. GIBBONEY,
Secretary.

CASE SCHOOL CAMERA CLUB.

REGULAR meeting of the Case School Camera Club, Friday afternoon, February 8th. Election of officers was the first thing on the programme, and the Secretary was instructed to cast a vote for the present officials. Ernest Maxwell was elected a member. Corresponding Secretary Punnett gave an explanation of the principles and workings of the "Carbon process," and some of the members expressed their determination to try it. The subject for next meeting may be a demonstration of the "platinotype process" by Mr. F. A. Coleman.

MILTON B. PUNNETT,
Corresponding Secretary.

COLUMBUS CAMERA CLUB.

THERE was a full attendance of the Columbus Camera Club at the meeting held at their rooms Tuesday evening, February 12th. No business was transacted, and the entire evening was devoted to the entertainment of the members and a few of their friends by the Secretary. Several negatives were shown of various highly colored maps made on Carbutt's orthochromatic plates; the color values

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were distinctly shown, and every detail brought out with great accuracy. Slides from these negatives were projected on the screen, and the different colored sections of the maps represented in their relative values. Two negatives made from a highly colored engraved plate (one a Carbutt B 17, the other a Carbutt orthochromatic) were passed around and then slides made from the negatives were shown on the screen. The superior quality of the slide made from the orthochromatic plate was very marked.

The Secretary then proceeded to the main part of the evening's entertainment, which consisted of a lantern exhibition of pictures representing the "Curiosities of Ohio," accompanied by descriptions of the objects represented. The illustrations were gathered together from a variety of sources: old wood-cuts, photographs, lithographs, and some from negatives. Going back to prehistoric times, the first illustration was of the skeleton of a mastodon, unearthed in Anglaize County, and destroyed at the burning of Barnum's Museum in New York City. Then followed a series representing the mounds, fortifications and other earthworks of the mound-builders. Next were shown a number of the curious natural formations in Ohio, as "The Devil's Tea Table," "Pompey's Pillar," "Rock Bridge," "Rock House," etc. After these came curious tree growths, as "The Big Sycamore," largest tree east of California, "The Wedded Trees," "The Twin Trees," "Old Man of the Woods," etc. Curious customs of the early settlers were represented, as "Niggering Corn," etc. Curious characters, as "Johnny Appleseed," "Mad Ann Bailey," "Lorenzo Dow," "John Gray," "Last Pensioner of the American Revolution," etc. Some sixty illustrations in all were given, and at the conclusion of the exhibition the club passed a vote of thanks to the Secretary.

The destruction by fire on Monday night of the Ohio State University laboratory entailed a very serious loss on two accomplished scientific workers in photography, viz.: Professors N. W. Lord and H. J. Detmers; the former lost over $500 and the latter $200 worth of photographic apparatus, besides many valuable negatives, prints and slides used in the illustration of their lectures.

The materials lost represented the accumulations of years of scientific work, which cannot be replaced, and were the personal property of these two gentlemen. The loss to the University is estimated at from $40,000 to $50,000.

FRANK H. HOWE.

ATLANTA CAMERA CLUB.

THE first outing of the Atlanta Camera Club was enjoyed on Election Day, the place visited being Stone Mountain, the well-known granite quarry of north-western Georgia. No place affords more unique subjects for the camera than this does, and every variety of picture was obtained, from the tranquil woodland path to the hazardous cliff, known as "Buzzard's Roost."

The second outing was on Thanksgiving Day, to Salt Springs, on invitation of the proprietor of the Sweetwater Park Hotel. The early part of the day was spent in boating down the Sweetwater, a river possessed of unusual variety and romantic beauty. At noon the party landed at Factory Shoals, a point made memorable in history from the complete destruction, by Sherman in his march, of the Manchester Manufacturing Company's factory, the grandest enterprise of its kind then in the South. It is a renowned landmark now, so grand a pile of ruin in so remote a forest region, and a fitting spot for enjoying dinner and its accompaniment of song and story. The return to the hotel was by means of mule wagons, and thence by rail to Atlanta.

Few trips could have been taken that could excel this in variety of subjects typical of the rural South; and the club expect soon to have their pictures in readiness for exchange with Northern clubs.

E. M. LINDLEY,
Corresponding Secretary.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the society was held Wednesday evening, February 6, 1889, with the *President*, Mr. FREDERIC GRAFF, in the Chair.

The Secretary reported that Messrs. E. & H. T. Anthony & Co. had presented to the society a bound copy of Volume XIX of Anthony's Photographic BULLETIN, and that Mr. George B. Wood had presented a catalogue, etc., of the recent photographic exhibition held in Vienna. Both gifts were acknowledged with a vote of thanks.

A package of tickets for use of members and their friends for a lecture on "Amateur Photography," by Professor Charles F. Himes, under the auspices of the Franklin Institute, was also received with the thanks of the society.

A report was received from the Executive Committee asking for an appropriation for

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binding journals, etc., and also suggesting a plan for selecting each year from the work of members six pictures to be considered the honor pictures for the year, copies of which should be preserved by the society. As the plan, after discussion among the members, seemed to be imperfect in some of its details, it was referred back to the committee for their further consideration, and report at the next meeting.

The Committee on Lantern Slides presented the following report:

Your Committee on Lantern Slides beg leave to report that the lantern and slides belonging to the society have been turned over to its care by the Executive Committee, and it has entered upon the duties assigned to it under the By-Laws. As a first duty the committee report that it is ready to receive gifts of slides from members. Contributions have already been made by Dr. Ellerslie Wallace, William H. Rau, Henry T. Coates and C. R. Pancoast, of which detailed report will be submitted at the next meeting. The society has at present nothing which could be called a "permanent collection of slides," and your committee have a suggestion to make, which, if adopted by the members, will give a nucleus from which to start. There have come into the hands of the committee the slides contributed by members to the Interchange of 1887–88, about fifty-four in all. These are the individual property of members, but if contributed to the society will serve as a starting point from which your committee hope a valuable collection will grow. A list of these slides is submitted herewith.

In this connection the committee suggest the propriety, and recommend the formation of a special series of slides illustrative of the City of Philadelphia. There must be in the possession of members of this society negatives of places and buildings of the greatest historical interest, and a collection could easily be made (if the interest and co-operation of the members is secured) which would be of the highest value. The series would include views in the Park, as well as of public and private buildings in the city, and the historical importance of such a collection need only be suggested to be appreciated.

The committee have adopted a system of labeling slides which will preserve a record of the names of the maker of the negatives, and of the members presenting slides. These will be attached by the committee, or labels will be furnished to the members on application.

The attention of the committee has been called to the fact that under the rules governing the American Lantern Slide Interchange, the society is required to elect a representative at its January meeting. As this was overlooked then, such an election should be held at the February meeting. The Interchange Slides to be shown at the conversational meeting, February 20th, are those of the Philadelphia Amateur Photographic Club.

At the last conversational meeting, January 16th, the slides of the Louisville and New Orleans Camera Clubs were shown. These were all gelatine slides, of fair quality, and those of the latter organization were of characteristic subjects of New Orleans and the lower Mississippi. Slides were also shown by Mr. David Pepper—some choice views at Bar Harbor; Mr. Frank H. Rosengarten, Mr. William H. Rau—animal studies at the Philadelphia Zoological Garden; Mr. Francis T. Fassitt—several fine foreign subjects principally; and some fine views in Germany and Switzerland, by Mr. O. D. Wilkinson, a visitor.

WILLIAM H. RAU,
FRANK BENNETT,
EDMUND STIRLING,
Committee on Lantern Slides.

The Committee on Membership reported the election of the following Active Members: John P. Anshutz, Elwood R. Kennington, E. M. Pine, Ogden D. Wilkinson and Frank S. Harris.

The Committee on Joint Exhibition reported favorable progress in their preparations. About two thousand circulars, with rules, etc., had been distributed to photographers and photographic societies in all parts of the world, and every effort was being made to secure exhibits of the very best photographs obtainable from all sources. Applications for space had already been received, which included a very prominent English photographer, who proposes to exhibit some fine work of large size.

The committees had in contemplation four evenings devoted to lantern slides. In addition to the slides sent for the regular competition, one evening would probably be given to the slides sent to the American Interchange by the Camera Club, of London, and it was thought that the remaining evenings might be devoted to slides representing work of our own members.

In accordance with the report of the Lantern Slide Committee, and as required by the rules of the American Lantern Slide Interchange, Mr. J. G. Bullock nominated Mr. W.

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H. Rau as Director, to represent the society in the Interchange for the coming year, to which position he was unanimously elected.

The President appointed Messrs. John C. Browne and F. T. Fassitt auditors, to examine the accounts of the treasurer and treasurer pro tem. for 1888.

Mr. Burrows (a visitor) showed a form of lamp which he had advised for use with flash-light compounds. The powder was inserted on a small funnel-shaped receptacle, the bottom being connected by a rubber tube with the usual bulb. A short distance above the cup for the powder a metallic ring about three inches in diameter was suspended, the ring being wrapped with asbestos fibre. The asbestos was wet with alcohol, which, when ignited, produced a large flame, into which the powder being suddenly forced by pressure on the bulb, was instantly consumed with a most brilliant light. Powdered magnesium thus used was entirely consumed, with practically no smoke or residue. Mr. Burrows also showed another form of the lamp which could be used with one hand, a trigger releasing a piston which, actuated by a spring, gave the necessary puff of air to blow the powder into the flame.

Mr. Lewis called attention to the fact that with flash-lamps of similar construction to that shown by Mr. Burrows a small portion of the powder was sometimes drawn back into the mouth of the tube, which, on being ejected the next time the light was used an instant later than the main charge, was apt to make a secondary flash, which was undesirable if not detrimental to good work. To obviate this he recommended inserting a very small piece of absorbent cotton into the bottom of the powder cup, which being blown out with the powder would prevent any getting into the tube, and would also be entirely consumed with the powder. The cotton could also be used with lamps in which the flame was blown against the powder, to hold the compound and prevent any of it being blown away and not consumed.

Mr. Lewis also mentioned having been troubled by a plate frilling at the corners, which he overcame by applying blotting paper. He thus absorbed the water from the film, and by gently patting it the film was made gradually to adhere again to the glass in its original position free from ridges or other marks.

Mr. Earl showed one of Beck's wide angle lenses fitted with the Iris diaphragm, which had many excellent features.

Dr. Reed showed what was apparently an umbrella, but on removing the case and unscrewing the handle it proved to be a tripod for use with a detective or other light camera. The legs were formed of light metal tubes, each made in two sections so that it could be extended to the full height necessary for a practical tripod. The umbrella tripod was of English make.

Mr. Bullock mentioned that in toning some prints on a new brand of paper he was trying, on putting them into the fixing bath, which was of usual strength, he found the albumen immediately began to dissolve and leave the paper. Thinking the bath too strong he diluted it, only to make matters worse. A tea-cupful of salt was then added to the fixing bath, which instantly stopped the trouble, and excellent prints were obtained on paper which otherwise might have been condemned.

Mr. Wallace thought if the silvering bath was too weak, it was liable to cause the trouble referred to with some paper. He recommended the use of a minute quantity of alum in the silver bath to coagulate the albumen.

Adjourned.

ROBERT S. REDFIELD,
Secretary.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

REGULAR MEETING, JANUARY 8, 1889.

THE meeting was called to order at 8.15 P.M., *President* CANFIELD in the chair.

The *President*—As our Secretary is obliged by another engagement to be absent to-night, I suppose the minutes are not ready to be read. If some one will make a motion that they be dispensed with, it will make our proceedings more regular.

On motion of Mr. Charles Simpson, the reading of the minutes of the last meeting was dispensed with.

The *President*—The first paper of the evening, "The Detective Camera, and How to Use It," is to be read by Mr. H. T. Duffield. Mr. Duffield has been to a great deal of trouble to collect the material for his very interesting paper, and I am sure you will all be very much pleased with it.

Mr. DUFFIELD then read his paper. (See next BULLETIN.)

The President—Mr. Grisdale has a paper upon "An Easy and Effective Way to Make Lantern Slide Mats."

Dr. PIFFARD—Mr. President, it seems to me that in considering the subject of the "focus of

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a lens," two points must be noticed, and one of them is the size of the image. You take a detective camera, a 4 x 5, with the ordinary lens that accompanies it, take a shot across the street, and you have the image of a man about half an inch high, hardly more than that. With a longer focus lens you will get it considerably larger.

Another point to be taken into consideration is, if you are going to photograph objects in motion, the further away you are from the object the less the motion will be perceptible; consequently the long focus lens will serve you where a short focus lens will not. It has been my experience that you often get into crowded corners where you have to use a short focus lens. My camera is adapted to two sizes of lenses. I use a 6¼ and an 8½ inch. In some pictures I took last winter by flash-light in the slums, I could not have done anything with an 8½ inch lens, but with a 6¼ inch lens my pictures were quite satisfactory. With ordinary work out-of-doors, I prefer altogether a lens of over 8-inch focus, and in many of the cameras you can use both lengths of lenses without very much difficulty; but there are cameras of some constructions in which you cannot. The kind of lens needed seems to me to go without saying.

As to the "finder": I have a finder on my camera – may be there are two. I never use them except for long range work. I don't need them, and for short range work I have never found a "finder" that registered with the plate. Mine doesn't in any of the detective cameras, and I have had four. As to the angle of view: the 30 degrees that has been mentioned is pretty small, I think; if you can secure a lens with 60 degrees and use F.8, you will have got about the maximum that you can use. The larger the angle the less the focal opening must be to give you a good, clear picture.

In regard to the range of the bellows: some of them mentioned 1¼ inches. I have 6 inches on mine, and with it I can take pictures up to one-third scale. In other words, an ordinary object would appear to be 2½ to 3 inches high, and would come out very sharp. I think I showed a picture like that some months ago; and the smaller the focus of the lens, other things being equal, the sharper your picture will be.

Mr. ATKINSON—Mr. York, who has taken more street views for us than any other man, told me that he always used a lens of 2½ inches equivalent focus. But you cannot take a high building unless your focus is very short. Then, as regards the camera, it is almost impossible to make a "detective camera" that will be fit for a wide angle lens.

Now, the other question about the name of the "detective camera." It is an odious name to me. We all know what a detective is. It is one who worms himself into your confidence to betray it. It is a hateful name to me; a very hateful name. The inventor of the detective camera lives in Brooklyn. His idea was that it should be called the artist camera; that was the original idea. And allow me to say right here, that Mr. Beach, I think, has made a little mistake in his article in *Harper's*, in giving the credit to Mr. Bolas, the editor of the *Photographic News*, as being the inventor of the detective camera. No doubt Mr. Bolas invented a camera, which he used to sit on to take a picture. Then there was a prejudice against it, that it was not a detective camera in any way, and he made it about the size of a shoe-box. Then he had to put it on the ground, and there was no "finder" to it. But the camera which is now known as the "detective camera," the credit of its invention belongs to this side of the water. It was invented here, and when Mr. York was over here about four years ago he obtained two samples of detective cameras in order, so he said, to show them on the other side what a "detective camera" was.

Dr. PIFFARD—Who was the inventor of the detective camera?

Mr. ATKINSON—I will leave that for some one else to say.

The *President*—I am very glad to hear from Mr. Atkinson, because he is familiar with the early detective cameras. If there is no more discussion we will listen to Mr. Grisdale on "An Easy and Effective Way to Make Lantern Slide Mats."

Mr. GRISDALE—Mr. President, I have not prepared any paper to be read this evening, and I only get up to say that what I have to show here this evening does not require any elaborate preparation. The main object was to let the members know that the society has been in possession of a lot of brass mats cut in the different forms shown on this sample card. They are for the use of the members of the society. And the only other wrinkle that is new is the use of a printing frame in connection with the mat. The great difficulty was a constant slipping of the mat, and the difficulty of placing the card back in its original position and getting a true form cut. In this way you take a form, an ordinary quarter printing frame,

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and cut your brass mat or form 3¼ x 4¼. The object of that is that it prevents any "play."

It is much better to cut the paper 3¼ x 4¼ than 3¼ x 4, because by so doing it allows you a margin to use if you bring your mats a little bit to the right or to the left when you mat a slide.

I am sorry that the cutter we have has become injured so that I cannot show you; but the point is to put in the brass mat and place the sheet of paper in behind it, then take the glass plate and put it in at the back, behind the paper; that secures the paper between the glass plate and brass form. You then place your back of the printing frame in. Now (illustrating) you have that in, so that there is no difficulty in cutting out the mat. You can cut a dozen sheets of paper that will cut thirty mats, for five cents. Now you have some idea of how the stock-dealer must suffer by selling mats at one dollar per hundred.

The *President*—What do you use to cut out the paper mat?

Mr. GRISDALE—The Robinson trimmer where the corners are round or ovals, and where the corners are square I use an ordinary pen-knife. You can't get into a square corner with a cutter. It won't reach it. That is all I have to say in regard to the mat er; it was principally to call the attention of the members to the fact that we have those mats if you should want them at any time.

The *President*—The interest in the matter of lantern slides is growing in the society, as our exhibitions bear witness, and doubtless there are a great many members that will take advantage of these mats.

Mr. A. Peebles Smith has a paper, I think, on the "Developer for Instantaneous Exposures."

Mr. SMITH—Mr. President, I have no paper prepared to night, but before speaking of development or developers, I will mention something relative to plates. Rapid plates of extreme sensitiveness that will possess any quality at all, are only made in the winter time. From now on to the first of March you will get a plate which will be unequaled in any make, and now is the time to lay in your stock for next summer. There are two kinds of plates: one a chemically quick emulsion, made by mixing everything cold, and a boiled emulsion. Boiled emulsions cannot be made in the summer time without decomposing the gelatine.

(*To be continued.*)

What Our Friends Would Like to Know.

N. B.—We cannot undertake to answer questions of a technical character except through the columns of the BULLETIN. *Correspondents will please remember this. No attention will be paid to anonymous communications.*

Q.—D. H. A. writes: Please inform me in next BULLETIN what is meant by glass paper (for sharpening retouching pencils), and where it can be obtained. I am using hydroquinone for developer. After developing one plate it is as black as tar, but still develops fairly. Could this be the ebonite tray? Should we use the very hard pencils for intense or thin negatives? For a light or heavy hand? Is a good eliminator advisable for bromides? Is the iron solution fit for use after it has turned brown? And what is its effect on bromide in that condition? Why does the solution turn brown? Would a 10-inch condenser cover a 5 x 7 negative, illuminated by a kerosene lamp, and be suitable to make bromides with at night? On page 220 of BULLETIN for 1887, is a drawing with a ground glass, and double condenser, and the ground glass is recommended, is it better and stronger than the 10-inch single one? Is the double one on the market and by whom?

A.—Glass paper is a kind of rough paper very much like sand or emery paper. Sand paper obtained at any hardware store, if not too coarse, would answer the purpose, we think. The deep color of your hydroquinone developer is probably due to the action of the alkali upon the ebonite trays; yet we use these trays without any such trouble; the quality of the trays must be poor. We cannot advise you about quality of pencils for retouching; consult a practical retoucher. We do not think bromides need any better eliminator than plenty of good clean water. Brown iron solution is not good for a developer. Old iron developer mixed with some new developer is often useful when bromides have had over-exposure. It turns brown because the ferrous has turned into ferric salt by oxidation. A 10-inch condenser would cover a 5 x 7 negative, as you state, and can be used with a Cooper lantern at night. A double condenser gives much better pictures than a single one and is essential for good results. Write to our publishers about double condensers, etc.

Q.—S. T. B. writes: I enclose you four prints of flash-light negatives. Will you kindly let me know through the "What our Friends Would Like to Know," in the BULLETIN, what you think of them. I am an amateur. The main difficulty I find is that unless the subject is placed several feet from the background a shadow of the figure is "thrown on the screen," and it does not look nice. How can I overcome this? I trust you will be able to enlighten me.

A.—The way to overcome the shadow difficulty is to use a flash-light of large volume by blowing the *pure* magnesium through a

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large alcohol flame; or else use two flash-lights, one smaller than the other, the latter on the shadow side of the subject, the idea being to illuminate the shadows just a trifle. Using large white reflecting screens on the shadow side will also overcome the difficulty.

Q.—G. W. P. writes:—Will you kindly examine the inclosed prints and give me your opinion as to the cause of the fog on the upper part of each, in your column, "What our Friends Would Like to Know"? This fog appears in all prints when there are large masses of shadow; the lights are always fogged, regardless of the sun's position. The print of large rubber tree with cocoanuts in the background was taken on a Carbutt "B" plate, with six seconds' exposure, with a medium diaphragm, and developed slowly. One experienced photographer thought it was due to light in dark room, but it does not appear on instantaneous plates, which, being more sensitive, would show it more than the "B" plates. Another thought there was a flare spot in the lens. The plate before referred to was a No. 16 sensitometer.

A.—The trouble is probably due to a pin-hole in your bellows or a leakage of light in your plate-holders. Put a plate into the holder and place on camera as you would to take a picture. Now draw slide, and leave the camera alone for ten or fifteen seconds without removing cap of lens; now replace slide, and develop the plate. If you get a dark spot on plate the fault is in your camera or plate-holder. You can soon find out which by putting a plate in the holder, allowing to remain in a shaded place out-of-doors in daylight for ten seconds, and then developing.

Views Caught with the Drop Shutter.

We regret to note the death of Mr. D. U. Morgan, for many years the head of the well known firm of albumen paper manufacturers. He died of pneumonia, at his home in Philadelphia, and was fifty-three years old.

A New Detective Camera.—New devices in the mechanism of cameras and composition of plates are constantly being offered to the photographers. Every day they have something new to try or talk about. The number of developers and their component parts is simply appalling to a beginner.

The Lilliput camera is a neat little picture taker of modest and unobtrusive appearance that was offered to amateurs the last week. As one of the first pictures taken with it was that of a small dog, it has been dubbed in the trade the "Little Pup." The camera is about the size of a cigar box, made after the satchel order, of light leather. It is a detective well adapted for street purposes. The operator presses a button under the box and the shutter flies open for an instant. Twelve plates are carried in the little box. During the strike it was used by a well known amateur with success to catch street cars loaded with policemen. The general idea to the casual observer was probably that the young man had a lunch box thrown over the shoulders. It measures 4 x 4 x 6 inches, and is fitted with a lens that is in focus for any distance. The Lilliput costs $25, with the usual outfit of plates and necessaries.—*N. Y. Times.*

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[*Extract from letter dated January 19, 1889.*]

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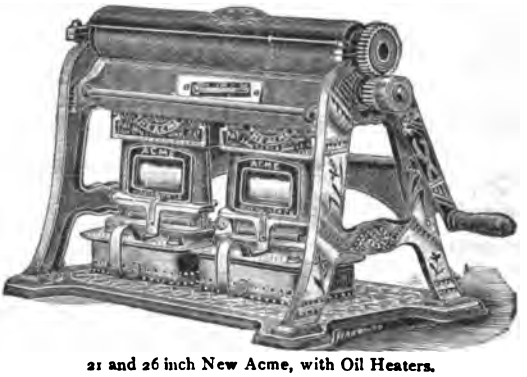
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IN presenting my TWENTY-SIXTH PROSPECTUS, I ask the attention of all professional and amateur photographers, and of all who are interested in our wonderful Art, to a few points concerning the conduct of my magazine for 1889.

FIRST. Its local name will be changed to one which will be more in keeping with the wide growth of Photography. *The Philadelphia Photographer* will go out of existence, after twenty-five years of service, and WILSON'S PHOTOGRAPHIC MAGAZINE will take its place. There will be no change in editor, publisher, or owner, nor in the publication, except as to details.

SECOND. The issues will occur on the first and third Saturday of each month, as heretofore. Those of the first will be embellished by an albumen-paper print; those of the third will be embellished by a photo-gravure, photo-engraving, or photo-lithograph print.

SUBSCRIPTION PRICE. For the monthly edition (twelve numbers a year), $3.00 a year; for the semi-monthly edition (twenty-four numbers a year), $5.00 a year. Half-yearly or quarterly at the same rate. Thirty cents per copy. Foreign postage four cents per number extra.

Subscribers to the *monthly* edition should specify which issue they prefer.

Wilson's Photographic Magazine,

By this special arrangement, should be in the hands of *every* one interested in photography. It will not be published from sheer fancy, or for the sake of pushing the interest of any mercantile house. Its long experienced editor is *in earnest* in his purpose to make his magazine subserve the growth and advancement of all that pertains to the art he advocates, and he desires to help those who, like him, depend upon it for a livelihood, and to instruct and assist those who practice it for diversion, or employ it as an accessory help in their own business. The determination is to make it *the best possible* photographic magazine. If experience counts for anything, the balance will turn toward WILSON'S PHOTOGRAPHIC MAGAZINE, for its editor has *grown with the growth* of Photography, and has always kept his position alongside.

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FOR 1889

UNUSUAL PREPARATIONS are already advanced for informing and diverting our 1889 readers. Every number will be embellished by a rich frontispiece, and will include examples of fine portraiture, splendid character studies, landscape and art lesson selections.

New departments will be devoted to short, terse, practical hints, amounting, at the end of a year, to a splendid book. Some elaborately illustrated articles, both amusing and instructive, on posing and the use of accessories and backgrounds, will be started soon. A series of reminiscent articles in honor of the jubilee year (semi-centennial of our art), will begin in January. A complete manual on painting backgrounds and accessories, by the late veteran background-maker W. A. ASHE, of New York, will appear in chapters. It will be invaluable. The present variety of columns, under the care of the editor, will be continued, and it will be his constant effort to make his magazine maintain its long time position, as *"the best in the world,"* and the cheapest. A world-wide connection enables him to secure and give the choicest the photographic world affords. When you buy instruction secure experience with it.

A SPLENDID PRESENT for the employee from the employer, and for the husband from the wife, or from one amateur friend to another. There could not be a more acceptable holiday present than a subscription to WILSON'S PHOTOGRAPHIC MAGAZINE. A neat and tasteful presentation card will be supplied to donors, in order that something tangible may be sent to the favored friend. It will read thus:

> *To* .....
>
> *Your name has been placed upon the subscription books of* WILSON'S PHOTOGRAPHIC MAGAZINE *for the year 1889.*
>
> *Presented by*
>
> .....

The earnest co-operation is asked of all those who desire to find in the Photographic Magazine they subscribe for:

A. A useful and convenient compendium of current thought and practice, on the rapid and constant growth of the art.

B. A skillfully prepared, carefully filtered, judiciously boiled down, and attractive collection of all really valuable matter from all parts of the world—the well coated plate without any waste emulsion on the under side.

C. A thorough knowledge of what the great workers everywhere are thinking, saying, and doing—the whole world's photography focused.

D. An escape from all the narrow ruts of prejudice and self-interest, often disguised, which come from publications issued for private ends and not for the real help of those who pay for them; and

E. A satisfactory and well-paying investment.

☞ *Please send subscriptions in early that you may secure all the numbers.*

EDWARD L. WILSON,
853 Broadway, New York.

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NEW ADDRESS,

No. 18 Dey Street, New York.

Eastman's Detective Camera,
Nash's "Boys'" Detective Camera,
Almond Rapid Lenses,
Fisk's Hoover Developers,
Fisk's "Ideal" Magic Lanterns,
The Amateur Burnisher,

LATEST NOVELTIES OUT.

Printing, Toning and Developing promptly done and guaranteed. New Catalogue out.

A. D. FISK.

TO LET,

A First-Class Photograph Gallery,

CORNER 14TH ST AND SIXTH AVE.,

Opposite Macy's Grand Entrance. NEW YORK.

Has been occupied by the present tenant for the past twelve years.

A LEASE OF FIVE YEARS WILL BE GIVEN.

For terms apply to

P. J. MACKEON,

SIXTH AVENUE, COR. 14TH STREET, NEW YORK.

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ZIMMERMAN BROS.,

DEALERS IN

Photographic Materials,

ARTISTS' MATERIALS, FRAMES AND ALBUMS,

Nos. 371 and 373 Sibley Street,

ST. PAUL, MINN.



TISDELL & WHITTELSEY,

Photographic Instruments and Appurtenances

SOLE MANUFACTURERS OF THE

T. & W. DETECTIVE CAMERA.

STEREOPTICONS AND MAGIC LANTERNS,

OXY-HYDROGEN APPARATUS AND SPECIAL SLIDES.

Portable Oxy-Hydrogen Apparatus that generates its own Gas as it is consumed.

MODELS AND INSTRUMENTS.

STEREOPTICONS FURNISHED AND OPERATED.

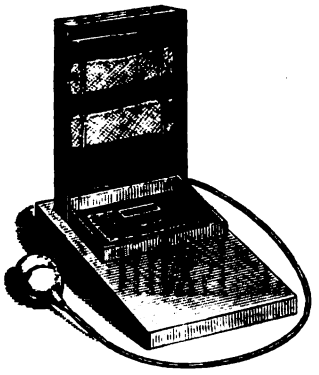
130 FULTON STREET, NEW YORK.

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The Reeves Magnesium Flash Lamp.

(PATENT APPLIED FOR.)

THIS new and unique lamp renders it possible to make fully exposed negatives at night with results equal to and not distinguishable from daylight pictures.



Reference to the cut shows its simplicity and easy method of using. The rimmed back, 7 x 9½ inches in size, holds horizontally two wicks, the pan below has other wicks or pads of cotton wool, surrounding the bowl of an ingeniously shaped brass blow-pipe, to which is attached rubber tube and bulb. To use it the pipe is charged with powdered metallic magnesium, a small quantity of alcohol poured on the wicks, which when lighted give a very large flame (the width of the back and several inches higher), pressure on the bulb fires the magnesium through the blaze, the result being a flash of tremendous size and actinic power. Then the back, which is hinged, is shut down, at once extinguishing the blazing alcohol.

There is no smoke, and there being no reservoir for alcohol, there is absolutely no danger of explosion.

The bowl of the blow-pipe is so designed that it spreads the magnesium in a fan-like shape through all parts of the flame, using only about twelve grains of powder.

Inside the hinged back are hooks to fasten the wicks, also a false back with curved bottom to convey the superfluous alcohol from upper wicks into lower pan. The back has spring to set it at any angle; there is a guard or fender to blow pipe to prevent it overheating, and cover for same. The whole is well and strongly made throughout of Russia iron, neatly mounted on metal-covered board, packed in box.

The results attainable with this lamp are simply astonishing; it will illuminate the largest sitting-rooms, so that the smallest detail at furthest end of room are well defined on negative. The flash being so large and well diffused there are no sharp shadows; for the same reason the light is not so trying on the eyes as when the flash proceeds from a point, as with the explosive compounds.

Full instructions inclosed with lamp.

Price complete, including rubber tube and bulb, wicks, etc. - $3.00

SOLE AGENTS,

E. & H. T. ANTHONY & CO., 591 Broadway, New York.

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E. L. EATON'S

PHOTOGRAPHIC STOCK HOUSE,

No. 238 FARNHAM STREET, OMAHA, NEBRASKA.

Having a full supply of Photographic Materials, I can furnish Photographers with stock at *nearly Chicago prices*, it also being a saving of four days' time.

Having the experience of nearly thirty years, and keeping the best of help in all branches, I can retouch, print and burnish cards, for the trade, at $1.25 per dozen. All work in proportion. **E. L. EATON.**

WE WISH TO PURCHASE

FROM PHOTOGRAPHERS

A Large Lot of NEGATIVE GLASS—5 x 7, 6½ x 8½, 8 x 10.

Write to us, stating how much you have of each size on hand and how soon you could ship it. We will send you prices paid, etc.

MONROE DRY PLATE WORKS, Jamestown, N. Y.

A GREAT INTERNATIONAL

Photographic Festival and Exhibition

WILL OPEN AT THE

CRYSTAL * PALACE

(ENGLAND),

ON MARCH 19th, 1889,

In commemoration of the FIFTIETH ANNIVERSARY of the Discovery of the Photographic Negative.

ART DIVISION. APPARATUS DIVISION. LANTERN DIVISION.

Application for Entry Forms should be addressed to THE MANAGER, Crystal Palace, S. E., England.

HENSHAW RUSSELL, Manager.

THE NEW AND IMPROVED

BOWDISH CAMERA STAND.

THE principles on which the new and improved Bowdish Camera Stand is constructed are the same as in the older style; but instead of a weighted central pocket, there are a number of slotted weights that can be instantly removed or replaced, according to the size of the camera to be supported. The chains are also exchanged for strong sash cord. The back of the camera can be either elevated or depressed, as desired. It is substantially made, runs on duplex casters, and with care will last a lifetime.



—* PRICES. *—

No. 1, for 8 x 10 Camera, ...	$15 00
No. 2, for 11 x 14 Camera, ...	20 00

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PUBLISHED EVERY WEEK.

THE EYE

DEVOTED TO

Art, Photography and Literature.

CONTRIBUTIONS FROM THE BEST WRITERS.

EVERY PHOTOGRAPHER should subscribe for this newspaper, as it is published in the interest of the fraternity. **The most thoroughly independent Photo Journal in America.** It is not controlled by any Photographic Stock House. **The best medium for Advertisers in the United States**—be they Stock Dealers, Dry Plate Manufacturers, Photographers, Operators, or, in fact, any one having anything to bring to the notice of a Photographer or an Employee.

RATES AS MODERATE AS IN ANY JOURNAL.

Advertisements in **"Want"** or **"For Sale" Columns** from **Fifty Cents,** for four or five lines for two insertions; **Twenty-five Cents** for subsequent insertions. Many large Galleries have been sold through the medium of THE EYE during the past year.

Price of SUBSCRIPTION, payable in Advance.

One Year, - - - - -	$2 50
Six Months, - - - - -	1 25
Three Months, - - - -	75

All Advertisements should be received by Friday morning. Make all Drafts, Checks, Express Orders payable to C. GENTILE. All Advertisements for Want Column must be paid in advance.

OFFICE OF THE EYE,

31 EXCHANGE BUILDING, VAN BUREN STREET,

CHICAGO, ILL.

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What Does it Signify?

HAVING seen a circular issued to promote the sale of a particular ***brand*** of Albumen Paper, in which occurs the singular misstatement that any other ***water-mark*** than B. F. K., Rives, "signifies nothing," we have thought it worth while to state exactly what the water-mark N. P. A. does signify.

Being desirous of getting up a quality of paper which could ***be depended upon*** as being as nearly uniform, and as excellent as in the nature of things could be obtained, we asked the President of the National Photographic Association what we should call it. He replied call it N. P. A. We wrote to B. F. K., at Rives, to make us their first quality of paper with this water-mark in quantities of a thousand reams. The interpretation they put upon the letters was "New Paper Anthony." They agreed to do so. We instructed that if by any mistake such a lot of paper proved in any respect ***inferior they must cut it up and sell it for writing paper,*** but in no case to send it to our albumenizers. We selected the albumenzing company that had the reputation of being the best in Europe, and instructed them that if any N. P. A. paper should by any accident come to them that should appear to be anywise ***inferior, they should not albumenize it,*** but send it back to B. F. K. to be cut up for writing paper, otherwise we should hold them responsible for damages. When the paper and albumenizers were thus secured all right, they were to cull out any that had been spotted in the albumenizing to be sold for second quality at less price.

The water-mark N. P. A. therefore ***"signifies"*** all of the above facts, and being a ***water-mark,*** and ***not a mere brand,*** it cannot be counterfeited because it can only be put in when the paper is made, and the ***brand*** that is on the ***same paper*** is registered, so that to copy it renders the offender liable to heavy damages.

EXTRA BRILLIANT
N.P.A.
DRESDEN.

Brands alone signify nothing, for we know of several instances where parties keep on hand an assortment of stamps to put on paper that comes to them unstamped, so that a customer can be accommodated in a few minutes with paper that is "branded while he waits."

B. F. K. never like to let any paper go out with ***their*** water-mark unless it is a good article. If it will merely "pass muster" they cut off the edge that has ***their*** water-mark in, and sell this paper at a less price to some albumenizers who send it to dealers in this country and elsewhere who put on it such brands as please them.

The ***brand*** therefore ***signifies nothing*** on whatever paper it may be stamped, ***and whether registered or not.***

The only thing that ***does signify anything*** is the water-mark N. P. A.

The testimonials to the excellence of this paper given by the most eminent photographers have been given not merely after ***trial,*** but after ***continuous use.***

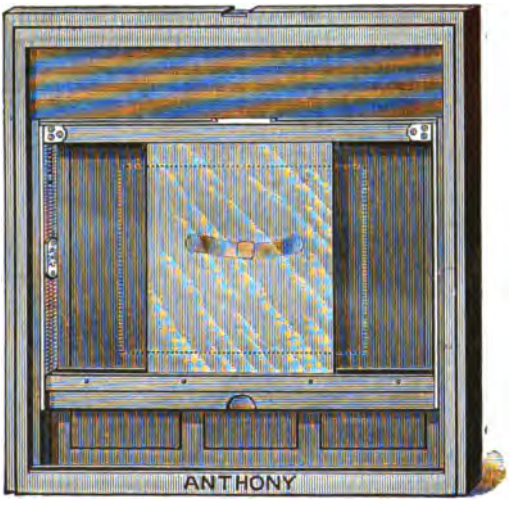
E. & H. T. ANTHONY & CO.,

591 BROADWAY, NEW YORK.

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All of the "CLIMAX" STUDIO CAMERAS are fitted with

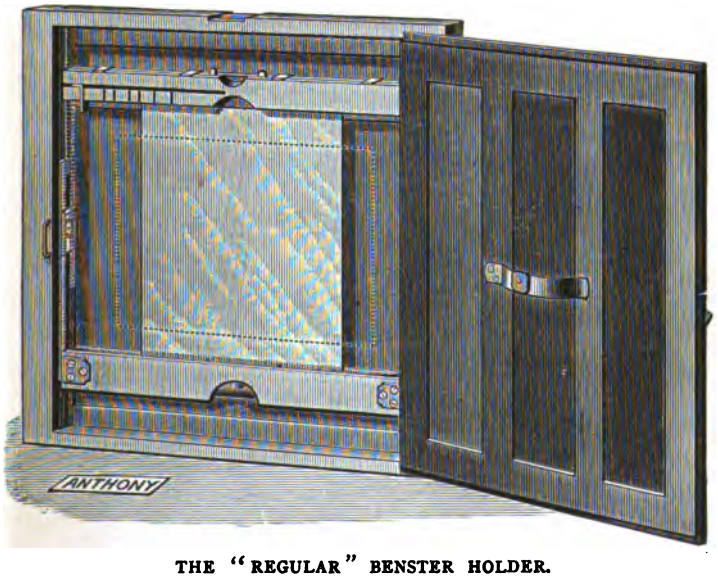
THE CELEBRATED BENSTER PLATE HOLDER.



THE ABOVE CUT REPRESENTS

THE "BENSTER" HOLDER WITH CURTAIN SLIDE

which may be applied to all "Climax" cameras except No. 43 B. It is not recommended with curtain slide for wet plate work.



THE "REGULAR" BENSTER HOLDER.

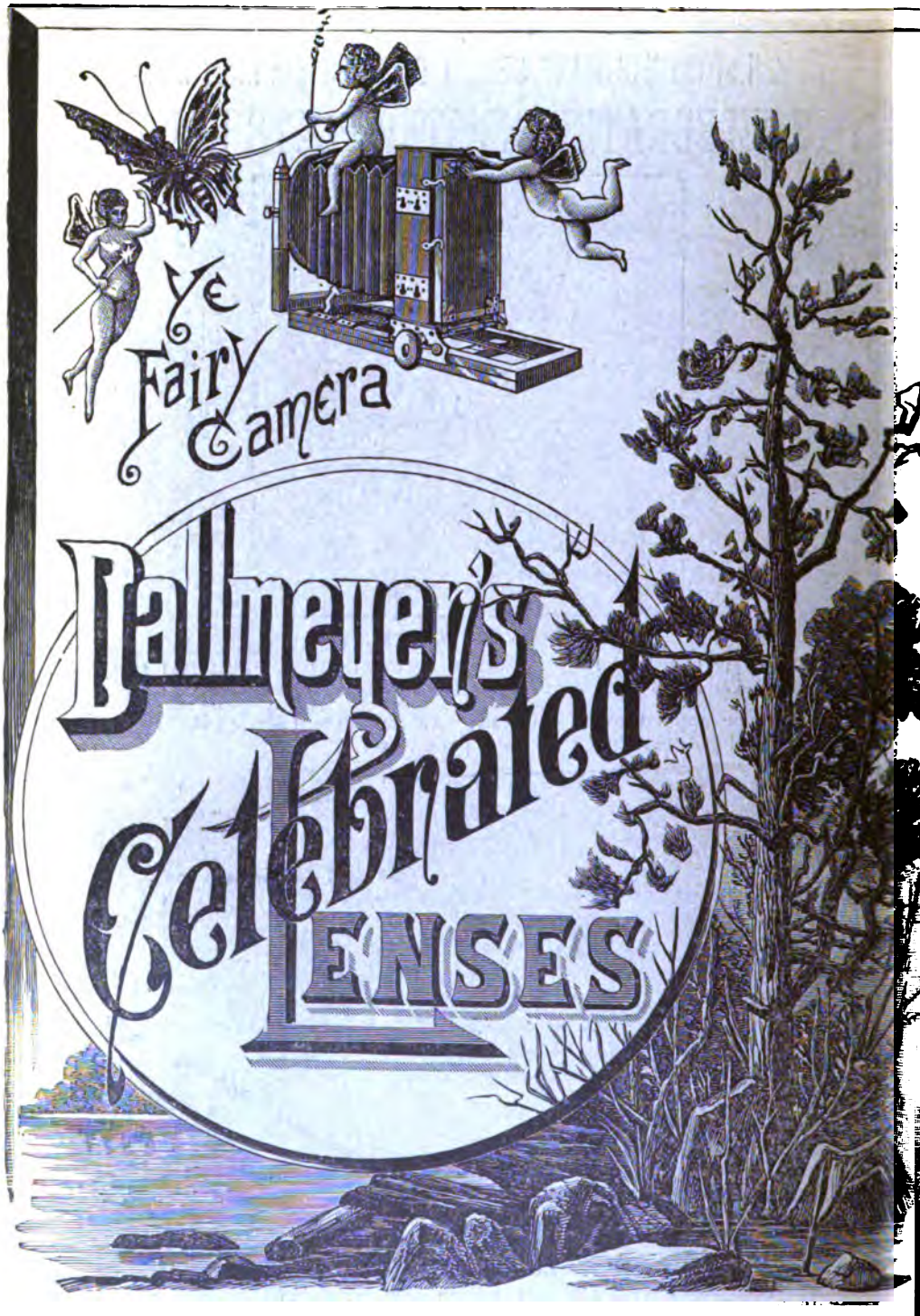
The best plate holder ever made for either wet or dry plate work.

It requires no kits, is easily adjusted to any size of plate in the darkest of dark rooms. The working part is the same in both styles.

E. & H. T. ANTHONY & CO., Manufacturers,

591 BROADWAY, NEW YORK.

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For the Amateur and the Professional.

Vol. 20. March 9, 1889. No. 5.

ANTHONY'S Photographic BULLETIN





Edited by
PROF. CHAS. F. CHANDLER, Ph.D. LL.D.
Prof. of Applied Chemistry in the School of Mines,
COLUMBIA COLLEGE, NEW YORK CITY.

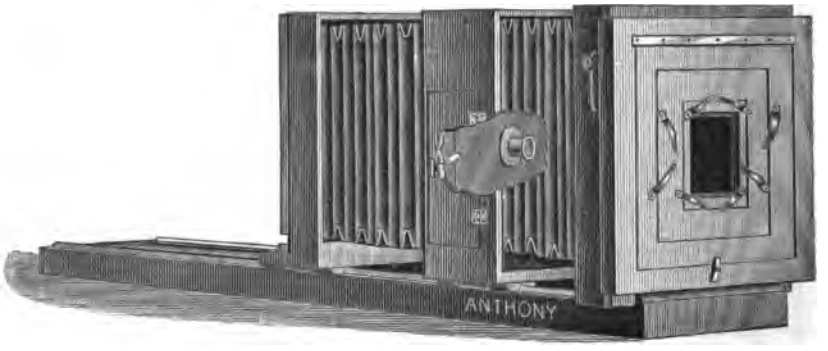
E. & H. T. Anthony & Co.,
591 BROADWAY
New York.

[Entered at Post Office in New York as Second Class Matter.] [Copyrighted 1888 by E. & H. T. Anthony & Co.]

FOR SALE BY ALL NEWS AND PHOTOGRAPHIC STOCK DEALERS.

CLIMAX

Enlarging, Reducing and Copying Cameras.



WHEN ORDERING, PLEASE SPECIFY NUMBER AND SIZES OF KITS WANTED.

PRICES.

Size, 6½ x 8½, - - -	$27 00	Size, 10 x 12, - - - -	$45 00
" 8 x 10, - - - -	30 00	" 11 x 14, - - - -	55 00

8 x 10 Size only kept in Stock. Other Sizes Made to Order.

The form of construction of this new camera is made apparent by the illustration here shown. The experienced copyist will not need any such simple directions for use as we append.

An important feature in this camera, that is found in no other, is, the center-board with lens can be used in the end of the camera, converting it at once into an extra long copying camera. This will be found very advantageous in enlarging small pictures by one operation.

DIRECTIONS * FOR * USE.

To copy a negative in the natural size, place it in the kit on the front of the camera and button it in. Attached to the center frame of the camera is a division upon which, on the side toward the camera front, a lens is mounted. Suppose this to be a quarter-plate portrait lens, the focal length of which we will suppose to be 4 inches; draw back the center frame and the lens twice the focal length of the lens (8 inches); slide the back frame with ground glass the same distance from the center frame. To enlarge with the same lens to eight times the size of the original, the center of the lens must be 4½ inches from the negative, and the ground glass be 36 inches from the center of lens. To reduce in the same proportion, reverse and have 36 inches from the center of the lens to the negative, and from the center of lens to ground glass 4½ inches.

For Table of Enlargements, see page 23, General Catalogue.

E. & H. T. ANTHONY & CO., 591 Broadway,
NEW YORK.

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MULLETT BROS.,

No. 518 WALNUT STREET,

KANSAS CITY, MISSOURI.

FIVE FLOORS, 124 FEET DEEP.



With a Splendid Line of New and Desirable Goods, we invite your orders.

DEALERS IN

Photographic Supplies,

PICTURE FRAMES,

MOLDINGS, ALBUMS, GLASS,

STEREOSCOPES. ETC., ETC., ETC.

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RAPID RECTILINEAR, WITH IRIS DIAPHRAGM.

HENRY G. PEABODY,

DEALER IN

PHOTOGRAPHIC SUPPLIES,

53 Boylston Street, Boston.

SOLE AGENT IN THE UNITED STATES FOR THE

WRAY LENSES.

Send for Catalogue.

NEW ENGLAND AGENT FOR THE

HOOVER PLATE.

CYRUS PROSCH'S NEW SHUTTERS.

PROSCH RAPID,

DUPLEX STEREOSCOPIC,

DUPLEX DETECTIVE,

DUPLEX TRIPLE IMPROVED.



DUPLEX WITH SILENT TIME.

The Prosch Rapid is capable of making exposures so rapid as to test to the utmost the skill of the most expert operators to develop. It is only for instantaneous work, such as taking horses at most rapid gait; athletes running, jumping; divers, etc., etc. Although operating between the lenses it is entirely different from the Duplex. Made in two sizes: No. 1, 1-inch opening, price, $18; No. 2, 1¼-inch, $22.

The Duplex Stereoscopic fills perfectly the want of a time and instantaneous shutter for Stereoscopic work. It consists of two Duplex Shutters on one frame, operated by one lever and one release, and consequently gives two identical exposures. Made in two sizes: No. 1, ¾-inch opening, $18; No. 2, ⅞-inch opening, $19.50. Lenses are arranged at 3¼ inches from centers; but this will be increased, if ordered, up to 3¾ inches for $1 additional. Rotary Stops, $2; Flange Collars, when required, 75 cents. Silent time attachment, $1.50; combined with slow instantaneous, $3.

The Duplex Detective is a reliable, compact and efficient Shutter for Detective Cameras, which can be used for both time and instantaneous work. Release for instantaneous is by a push trip (pneumatic if desired). Time exposure mechanism is same as silent self-setting time to regular Duplex Shutters, by which instantaneous exposures can also be made by pressure to pneumatic bulb. Price, including fitting to Camera and Rotary Stops, $15.

THE EVER POPULAR DUPLEX SHUTTER still retains its lead of all others, whether of home or foreign production. The Rotary Stop is considered by an army of users an indispensable adjunct to the shutter, likewise the silent, self-acting time, and slow instantaneous attachment, which operates shutter by direct pressure of air through pneumatic device.

DUPLEX ENLARGED REVISED LIST.

Numbers.....	00	0	0A	1	1A	2	2A	3	3A	4	5	6	7
Openings, inch...	⅝	¾	1	1¼	1⅜	1⅝	1⅞	1⅞	2	2¼	2½	3	3½
Price.....	$11.50	$12	$12.50	$13	$13.50	$14	14.50	$16	$19*	$20*	$22*	$24*	$27*

* Including silent time attachment.

Rotary Stops up to No. 1, $1.50; above that, $2. We do not make Rotary Stops for sizes larger than No. 2A, except by special agreement. Silent time attachment same prices as Rotary Stops.

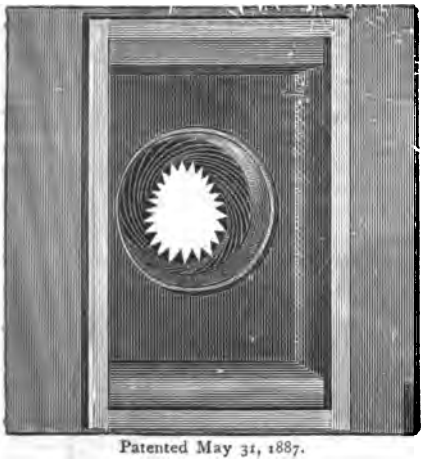
When Flange Collars are required, as on Ross and other lenses similarly mounted, 50 cents extra. Shutters can be furnished for most standard lenses, fitted ready for use, but it is to customer's interest to forward his lens tube with order, otherwise perfect fit is not guaranteed. These shutters are owned and manufactured solely by the Prosch Manufacturing Co. None genuine without our stamp. Circulars containing full information forwarded on application.

PROSCH MANUFACTURING CO.,

No. 389 BROOME STREET, NEW YORK.

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TO PROGRESSIVE PHOTOGRAPHERS.



Patented May 31, 1887.

THE NEW MAGIC VIGNETTER,

FOR

Producing the Black Background or Ebony Photographs.

Hundreds of these Vignetters are now in use, GIVING UNIVERSAL SATISFACTION. They can be easily adjusted to any camera, and require no more trouble or expense than making plain photographs. Every progressive photographer should have one. Its work will attract attention in your case and increase your business.

Every one guaranteed. Price, each, $8. Sample photographs made with it sent on application.

Kuhn's Sensitized Paper Stretcher and Dryer.

Patented April 13, 1886.



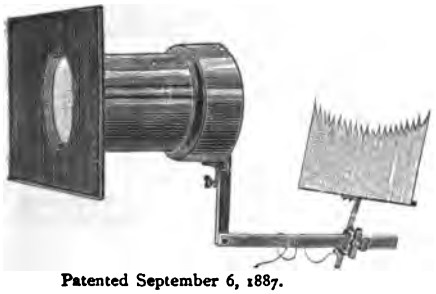
Paper dried with it lays perfectly flat, and therefore better prints can be obtained.

You can also cut your paper either lengthwise or crosswise of the sheet, as it neither stretches nor shrinks afterwards.

In addition, it is very desirable for handling Bromide Paper.

PRICE.

18 x 22 size, each, -	- $1 50
20 x 24 " " -	- 1 75



Patented September 6, 1887.

KUHN'S
Improved Vignetting Attachment

FOR VIGNETTING THE NEGATIVE.

Light, Strong and Durable.

It is perfectly reliable and quickly adjusted to any lens by the means of a thumb-screw. It can be raised or lowered at will to any position desired by the operator, by simply pulling a cord, without leaving his position behind the camera. Price, each, $3.50.

These articles can be procured through your dealer, or

H. A. HYATT, Sole Agent,

AND DEALER IN

PHOTOGRAPHIC SUPPLIES OF EVERY DESCRIPTION

N. E. cor. Eighth and Locust Streets, St. Louis, Mo.

If you have not received our 300-page Catalogue, send for it.

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ALLEN BROTHERS,
DETROIT, MICH.,
Sole Agents for the United States.

ALLEN BROTHERS, Detroit, Mich.:

HAMILTON, O., October 12, 1888.

DEAR SIRS,—I have for the past three years used a THREE B SUTER Lens for out-door work, and FIVE A for interior work, and, so far as work is concerned, I would not exchange a Suter Lens for any other kind, regardless of price.

Very respectfully, (Signed) I. M. BRANDTCH.

ALLEN BROTHERS, Detroit, Mich.:

CIRCLEVILLE, O., October 5, 1888.

GENTLEMEN,—The No. 6 B SUTER LENS which we ordered of you about one year ago has proved worthy of all the praise we can give it. We have made cabinets of babies in one-quarter of a second, and 14 x 17-groups in from twelve to sixteen seconds—well stopped down, all clear and crisp—as good, we think, as any lens in use, if not better; and for out-door viewing and grouping it is A No. 1. The more you can sell the more good you will do for photography. We expect to order a C Lens in a few days.

Yours, etc., (Signed) REED BOCK.

MORE GOOD WORDS FOR THE SUTER LENS.

REVISED PRICES OF

LOCKWOOD'S PHOTO CLIPS.

(Patented.)

These are the most desirable articles of their class to be found in market, being substantially made in the best manner, and the fact that they never break or give way in any particular must recommend them to all. The springs are made of first quality brass wire and the wood is very hard and durable. They are made in two sizes and various styles, as follows, the cut showing exact size of the large clip.

No. 15 A	Small, 2½ inches, plain, chamfered,	- - -	per gross,	$4 80
" 15 B	" " with hook, "	- - - - -	"	5 50
" 15	" " " and hole chamfered,	-	"	6 00
" 1	Large, plain,	- - - - - - - - - - -	"	6 00
" 14	" with hook,	- - - - - - - - -	"	6 80
" 17	" " hole chamfered,	- - - - - -	"	7 00
" 18	" " hook and hole chamfered,	- - -	"	7 20

E. & H. T. ANTHONY & CO., Sole Agents.

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Dealers in Photographers Supplies

SWEET Outfits a Specialty

WALLACH & Co.

229 & 231 State Street CHICAGO.

Try McGOWAN'S A Complete Success

DRY FERROTYPE PLATES

FOR SALE BY ALL DEALERS.

PURE CHEMICALS ARE INDISPENSABLE

TO THE PROFESSIONAL AND AMATEUR PHOTOGRAPHER.

THE E A PYROGALLIC ACID

YOU CAN ALWAYS DEPEND UPON.



Recommended by

NEWTON, WARDLAW, COOPER AND ROCHE,

All of whom are known to every Photographer.

THE STANLEY DRY PLATE COMPANY,
THE CRAMER DRY PLATE COMPANY,
THE CARBUTT DRY PLATE COMPANY,
THE ST. LOUIS DRY PLATE COMPANY,
AND MANY OTHERS.

See that it has the E A Trade Mark.

Put up in 1 oz. Bottles. | Put up in 8 oz. Cans.
" 4 oz. Cans. | " 16 oz. "

☞ ASK YOUR DEALER FOR IT. ☜

Cooper's Concentrated Developer, which is found to work so well on all kinds of plates, is compounded with the E A Sublimed Pyro; also Anthony's Economical Developer, and Stanley's Concentrated Developer.

E. & H. T. ANTHONY & CO.,

591 BROADWAY, NEW YORK.

C. T. SHAPE.

Northwestern Photographic Warehouse

—AND—

CHEMICAL LABORATORY,

No. 227 GRAND AVENUE, MILWAUKEE, WIS.

A FULL LINE OF PHOTOGRAPHIC GOODS,

Embracing Apparatus, Chemicals, Frames, Albumenized Papers, etc.

SPECIALTY.—Nitrate of Silver and Chloride of Gold made for Photographic purposes. Gold and Silver Wastes refined. Satisfaction guaranteed. Send for Price List.

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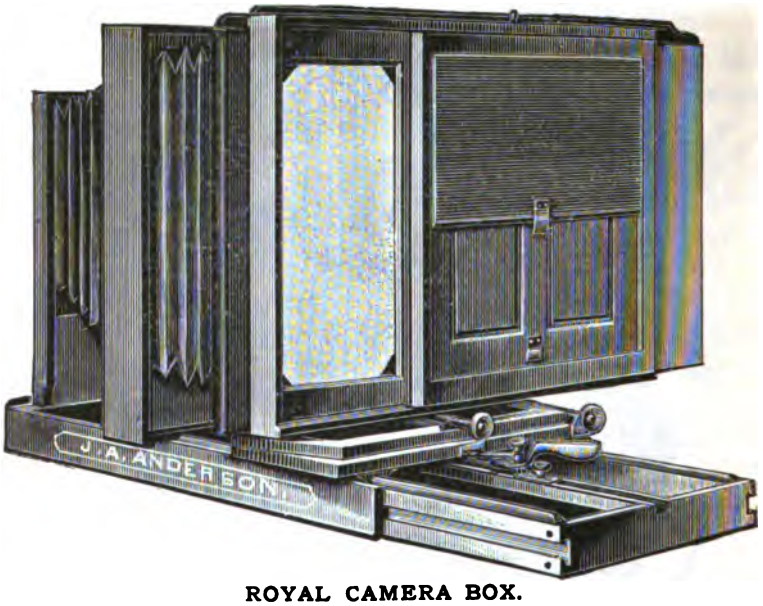
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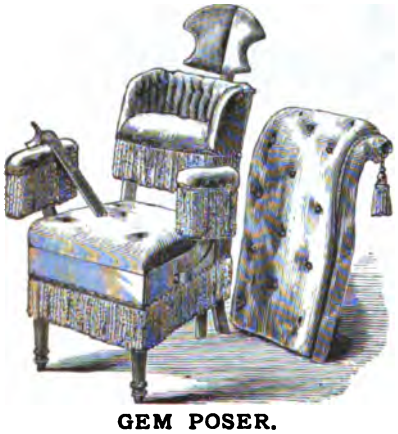
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There is no smoke, and there being no reservoir for alcohol, there is absolutely no danger of explosion.

The bowl of the blow-pipe is so designed that it spreads the magnesium in a fan-like shape through all parts of the flame, using only about twelve grains of powder.

Inside the hinged back are hooks to fasten the wicks, also a false back with curved bottom to convey the superfluous alcohol from upper wicks into lower pan. The back has spring to set it at any angle; there is a guard or fender to blow pipe to prevent it overheating, and cover for same. The whole is well and strongly made throughout of Russia iron, neatly mounted on metal-covered board, packed in box.

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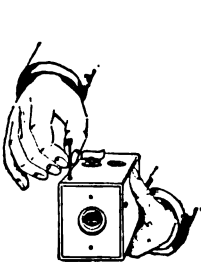
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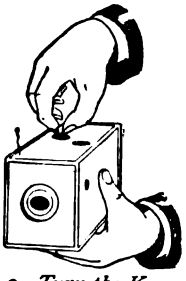
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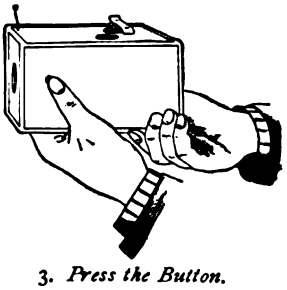
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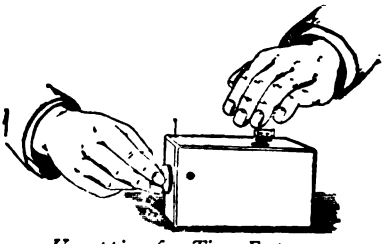
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ANTHONY'S
Photographic Bulletin.

Prof. CHARLES F. CHANDLER, Ph.D., LL.D., *Editor.*
ARTHUR H. ELLIOTT, Ph.D., F.C.S., *Associate Editor.*

MARCH 9, 1889. Vol. XX.—No. 5.

TRANSPARENCIES AND BROMIDE PRINTS WITH HYDROQUINONE.

THERE are many points of resemblance in the management of the development of both transparencies and bromide prints. In each case the emulsion is usually a slow one, made so as to give strong contrasts of light and shade. In the transparency this means that the high lights shall be clear glass, and for bromide prints the white parts of the picture must not be fogged.

Up to the present time these results have only been attained with certainty by using the ferrous oxalate developer, and the use of some organic material, such as citric acid, as a restrainer, and to preserve the high lights from fog. Quite a number of attempts have been made to use pyrogallol for the production of transparencies and bromide prints. In some hands this has been successful; but in the majority of cases the use of pyrogallol for transparencies has resulted in positives of a brown color not always suited to the subject, and in the case of bromide prints, in addition to a disagreeable brown color, there has generally been a difficulty in obtaining clear high lights.

With the advent of hydroquinone and the use of better varieties of it, made possible by the increased demand, we are now able to compound a developer that is almost universal in its applications. The negatives produced by the use of hydroquinone are certainly as good as those made with pyrogallol, and the danger of fogging them is very much reduced by the less rapid action of the new developing agent. There is only one danger that occurs to us in using hydroquinone, and that is, the light of the developing lamp has a better chance to exert its influence upon rapid plates, owing to the lack of color in the developer. With pyrogallol there is quite a protection in the color of the developer, the brown tint being very non-actinic. We believe that a number of the early failures with hydroquinone were due to the use of too much light while developing rapid plates. In the case of slow plates for transparencies and also in the case of bromide prints, this danger is not likely to occur. Nevertheless, a cautious use of the light when developing with hydroquinone is to be recommended.

The use of hydroquinone for making transparencies and bromide prints has led to some very beautiful results, especially in the former case. Its slow and uniform action, the ease with which the picture comes out, the entire freedom from fog, and the particularly handsome black and white tones obtained

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with it, have won for it many friends that looked askance when it was first proposed as a developer. Another great point in its favor is the fact that it loses its strength very slowly and can be used a great many times before it is useless. This latter fact makes it really cheaper to use than pyrogallol, although the first cost may be greater. We do not care to give any special formulas for the development of transparencies or bromide prints. The quantities of hydroquinone may vary from two to five grains in the ounce of water; the alkalies may be carbonate of potassium or carbonate of sodium or both; or potassic hydrate or sodic hydrate may be used. But in all cases sulphite of sodium is needed to secure the best color for the pictures, and in many cases citric acid or potassium bromide is found useful as a restrainer. Within certain limits the use of more alkali will allow of the reduction of the quantity of hydroquinone; but great care must be taken, as the warm weather approaches, that the use of excessive quantities of alkali does not cause frilling.

Some very beautiful results that we have lately seen, obtained by the use of hydroquinone, have called forth the above remarks about the new developing agent, and we hope they will lead our readers to try it for themselves. We are more than ever satisfied that hydroquinone is destined to supplant pyrogallol.

EDITORIAL NOTES.

THE third annual joint exhibition of the photographic societies of Philadelphia, Boston and New York, which is to be held in the Academy of Fine Arts, Philadelphia, promises to be better than anything of the kind hitherto attempted by the three societies. Exhibits should be delivered to Mr. John G. Bullock, 523 Arch street, Philadelphia, by March 25th next. The exhibition is to be held April 8th to 20th next.

A VERY unfortunate accident with the iron cylinders used for projection apparatus occurred lately in Dublin, Ireland. It appears by some mischance the gas in the oxygen cylinder (which should contain oxygen gas only) became mixed with coal gas, and the unfortunate victim, Mr. Bewley, lost his life on lighting the gases issuing from the cylinder. Our English contemporaries contain long reports about the accident; but, like all misfortunes of this kind, the man who could tell us just how it happened is no longer able to give his evidence. One thing strikes us very forcibly, and that is the unnecessarily high pressure (1,200 pounds to the square inch) which our English cousins are using on their gas cylinders. This form of illumination has been used for a long time in the United States, and we have only heard of one or two accidents in twenty years. We believe this is largely due to the fact that much lower pressures are used on this side of the water. With a pressure of two hundred and fifty pounds on the square inch the gases are much more easy to control than at a higher pressure.

IN the *Moniteur de la Photographie*, M. Balagny recommends two sheets of glass, yellow and green, as a substitute for the ruby variety for use in the dark room. One glass is apple-green (cathedral green) and the other is yellow glass ground on one side to diffuse the rays. The best variety of yellow glass is that obtained by the use of silver oxide. M. Balagny does not claim that this light

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is safer than the ruby lamp; but from his experiments with plates it is just as good, and very much more agreeable to the eyes.

THE Providence Camera Club are about to locate in new quarters, and will probably have the best arranged suite of apartments for photographic work in the Eastern States. We shall try to find space for a description of their new rooms in an early issue of the BULLETIN.

SOME time since we received a very handsome calendar from the publishers of the *Photographic Times*. It adorns our sanctum and is a constant source of pleasure and usefulness. The design is a circular disc with the days of the month and a pointer to indicate the date. We tender our best thanks to the publishers of our contemporary for their kind remembrance.

THE Montreal Amateur Photographic Club will hold its second annual exhibition of photographs in April next, and desires contributions from all amateur photographic clubs in this and foreign countries. The pictures desired are those made by different printing processes. Prints may be mounted but not framed, and are sent and returned at the expense of the club. They should be sent to J. W. Davis, 2204 Catherine street, Montreal, Can., before March 30th next.

THE Watertown (N. Y.) Camera Club was organized January 30th last, with the following officers: *President*, H. M. Hill; *Vice-President*, J. E. Knowlton; *Secretary*, George I. Woolby; *Treasurer*, L. E. Child. As most of the members of the club have been at work for two years, much good is expected from the organization.

THE following lines speak for themselves: "The Photographic Merchants' Association, in annual session at the Burnet House, Cincinnati, in looking back over the events of the past year, recall with sorrow the loss you have met in the death of Mr. Edward Anthony. We hold his name in grateful remembrance and rejoice over the many pleasant memories which come to us and to you for his noble living. Fraternally yours,

GEORGE R. ANGELL, *President.*
J. C. SOMERVILLE, *Vice-President.*
J. H. SMITH, *Secretary.*"

The Photographic Beacon, after some months of obscurity, again beams forth in a new dress, and with better prospects of continued usefulness. It is now in the hands of a stock company, and with Dr. Nicol at the helm again will be welcome to our table.

[*From our Special Correspondent.*]

ENGLISH NOTES.

OUR novelists continue to make effective use of photography. In that splendid story, "A Dangerous Catspaw," by D. Christie Murray, which has been running in *Longman's Magazine*, the wealthy heroine, Miss Pharr, is "gone" on photography, which has also been the life-long amusement of a venerable Scotch doctor who figures in the tale. Taking photographs—for practice sake—one Sunday afternoon, out of the drawing-room window of a

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country house, they leave the development for a future day. On the same day Miss Pharr's jewels are stolen, and her suitor and admirer—the clever barrister, Wyncott Esden—who is supposed to be in London, is summoned to aid in the discovery of the thief. We cannot follow the story in detail, but when the old doctor comes to develop and study his negatives, he discovers peering out from the shrubbery which faced the drawing-room window the tortured and agonized face of Esden, who was lying in wait there, and to whom the guilt of the burglary is traced.

A writer in the *Boys' Own Paper* treats the subject in a lighter style. A boy at boarding-school is in the habit of escaping from ths play-ground by vaulting over the wall while the master's back is turned, returning in like manner. But, unfortunately for the truant, another boy at the school is engaged in taking instantaneous photographs of a lad playing cricket, the wall being the background. The master, by chance, assists in the development of the negative; and there—just astride the wall—is seen the wanderer, who is greatly surprised when he receives a heavy imposition for the escapade which he feels certain the master never witnessed !*

In astronomy, photography is doing most marvelous work. Every one is familiar with the nebular hypothesis first formulated by Laplace, which explains the origin of the solar system as due to the condensation and rotation of an enormous cloud of matter—a nebula. Rings of matter are thrown off in succession, which, gathering together, form the planets, while the central part of the nebula remains as a sun. Mr. Isaac Roberts, of Maghull, near Liverpool, who has been doing magnificent work in astronomical photography, has recently obtained a photograph of the great Nebula in *Andromeda* by an exposure of four hours with his 20-inch reflecting telescope, which actually shows a new system in the act of formation. There is a central mass of condensed nebulous matter; outside this are one or two irregular rings, and further still from the center, spots of light which doubtless represent an early stage of planetary existence. In fact this nebula in *Andromeda* is now passing through the stage in which our own solar system was, say a million million years ago !

Hydroquinone continues to advance in favor as a developer, both for plates and paper. When used with sodium hydrate it is powerful and rapid, but for lantern-plate work I prefer a mixture of equal parts of sodium and potassium carbonates as the alkali. Since hydroquinone is a universal developer, answering both for plates and paper-positives, I believe it will eventually displace both pyro and ferrous oxalate. Its price has now been reduced (in England) to two shillings per ounce, and since the same solution can be used over and over again until the liquid is exhausted, it is already the cheapest developer of all. It combines the latitude of exposure of pyro with the freedom from stain and good color of ferrous oxalate. The developer should be made up rather strongly, say 6 grains each of hydroquinone, potassium carbonate and sodium carbonate, with 24 grains of sodium sulphite to every ounce of boiled distilled water. To each ounce of this developer 4 drops of a 10 per cent. solution of potassium bromide may be added.

Those who like clean, unstained negatives should not only use distilled water to make up the developing solutions, but should boil the water for ten or fifteen minutes in a clean glass vessel before using. This boiling expels the

*Imposition is, the setting of an extra task of study for misdemeanor.

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dissolved air present in the water and which is the chief cause of discoloration of the pyro. Even if distilled water is not used, boiling the water improves it by getting rid of the air, and also of much of the salts of lime, etc., of which a certain proportion occurs in almost all spring or well water.

A new photographic publication has just been announced—"The Photographic Societies Reporter," monthly, price four pence—in connection with the "Amateur Photographer." It is intended to contain in full the many papers now read before our Societies, most of which at present are "born to blush unseen" and die unread. The chief objection which occurs to me is that the average paper is not worth publication. It is made interesting, perhaps, to those who hear it delivered by the personality of the speaker, and by the experiments and illustrations which he exhibits; but for the most part such papers are only a *rechauffé* of well-known facts. The editors (Messrs. C. W. Hastings and Lyonel Clark) hope that the prospect of publication will make all the authors prepare their papers more carefully, write them out neatly beforehand, etc. I fear they are sanguine men!

Many of our best workers are preparing papers for the second volume of "Anthony's International Annual," which I am glad to hear is to be published this year as early as Whitsuntide. The first volume is acknowledged by every one to be the most valuable of its class ever issued. It is already becoming scarce and copies are certain to be at a premium in the future.

A feature of the winter here has been the multiplication of photographic societies. Every large town now has—every village bids fair to have—its "Camera-Club" or "Photo Association" or "Society." This is quite right; but I regard the multiplication of societies in the same town as an evil. Better one strong society than two or three weak ones. In this connection the old questions of amateur and professionals crops up again. By all means let the local society be broad enough to include all. There are black sheep in every fold, and it must be confessed that some of our professional brethren are very nigrescent; but you need not fear their desiring to join your ranks; the subscription will keep them out, and besides, there is the ballot box. Some of the best, ablest and most gentlemanly men I ever met have been and are professional photographers. I have wandered in many parts of these isles, and have invariably received help with kindness from local professionals. We are all engaged in one pursuit, therefore let us mingle as friends, and learn or teach as best we may.

With respect to competitions the matter is different. There I would rigidly separate the professional from the amateur. I see our new journal, "Photography," has taken a paragraph from one of my former communications to the BULLETIN, and invites a special discussion in its pages as to the definition of "an amateur photographer." Well, I stick to my guns, and again declare "that the man who accepts money—to be devoted to his own personal benefit—for photographs of his own making, cannot be considered an amateur." Why, the very word "amateur" means a person who does a thing for "love," and those who play lawn-tennis know that "love" means "nothing"! If Lord Robert Grosvenor had lived—poor fellow! he died an untimely death in Palestine a few months back—we should have heard more of this question, for he had just founded an Association of Amateur Photographers, who were to take and sell photographs for the benefit of charitable institutions; but with his death the whole thing has come to an end. In such a case the amateur would, according to my defini-

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tion, have still retained his status, for the sale would not have been for his "personal benefit." But I think the plan would have been open to abuses and it would certainly have injured many struggling professionals. That we may all "live and let live" is the wish of TALBOT ARCHER.

COLUMBIA COLLEGE EXHIBITION.

(*Continued.*)

MR. ALGER C. GILDERSLEEVE showed some very interesting work in the application of photography to surveying. Taking a base line on the roofs of some houses on 48th street, New York, he has made quite an accurate survey of the surrounding section of the city, and constructed a map of the district. This exhibitor also showed a number of platinotypes by the new process. These are only fairly good; but the fault is in the process; we have yet to see any better. We also noted some excellent views in Central Park and on New York Bay by the same exhibitor.

Gustave R. Tuska had on exhibition a number of photographic reproductions of oil paintings, rather an ambitious piece of work, but fairly good. These were Rosa Bonheur's "Horse Fair;" "1807, Friedland," and others. Among other good pictures we noted an excellent interior of the Studio of the Architectural Department of Columbia College; a very pretty view of "Fawn's Leap," in the Catskills; and a "Farm-yard Scene" at Cornwall, N. Y.

W. W. Whitfield exhibited a number of interiors of the laboratories and museums of the School of Mines that were only fairly good, owing to some bad halation; the chemical museum was the best.

Among a number of other pictures by the same exhibitor were some very good ones of the blizzard last March, a number of groups on steam yacht and of School of Mines classes, all of which were excellent.

C. H. Young had a number of 8 x 10 views taken in the Adirondacks that were particularly good, excellent in every way.

C. Ed. Gudewell had several excellent views of the new bridge across the Harlem River, and a very good one of a locomotive leaving Profile Station.

Dwight W. Taylor had an excellent interior view looking out upon a piazza. Also a bridge view with some exceedingly fine work upon foliage.

Dr. H. T. Vulté had a number of pretty and interesting children's pictures, the best of which was a child with a pug dog on some steps. A group of white Brahma hens was also very good indeed.

A. L. Levy showed several fine views of Washington Bridge; also a number of pictures of Manhattan Beach scenes that were very good. The snow scenes and those of the blizzard were also excellent.

T. L. P. Luquer exhibited an excellent group of fifty or more Sunday-school children, and also a very picturesque view of St. Matthew's Church. Both pictures were very good, and that of the church was very well caught from an artistic standpoint.

Julien Townsend Davies had a number of fine views taken around Newport. "The Haunted House," "Purgatory" and "Old Mill" were excellent. The same exhibitor also showed "Chain" and "Sheet" lightning pictures. As a study "?" was very good. It was an amateur photographer on his knees before a lady, we presume proposing. Another good shot was an instantaneous view of a Lawn-tennis Game.

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J. S. Hoyt had a number of excellent 8 x 10 interiors, one taken with the magnesium flash-light being very good indeed. A group, an operation in the hospital, was also very good.

C. F. Walker, though last, is by no means the least of these active young photographers, and his 5 x 8 views of Catskill scenery were all good and some of the best in the exhibition.

Altogether the exhibition must be pronounced a decided success and an advance over former years.

Taking out the work of a few of the members, we must confess that the most important work for most of the exhibitors to learn, is good printing. Many of the prints were muddy, flat, over-toned, brown, and generally anything but pleasing to look upon. There was many a good negative spoilt by injudicious printing. Furthermore, Ralph McNeil and a few others can well serve as models for the balance of the members in the matter of mounting prints. A poor print well mounted often looks better than it really is; but a good print badly mounted is an indication of carelessness and a limited idea of artistic taste.

What we have said is in no fault-finding mood, but with the idea that much of the good energy of the society might be put to useful purposes in the directions we have indicated, better prints and better mountings.

GETTING A CAMERA INTO CANADA AND GETTING IT OUT AGAIN.

BY J. B. BARLOW.

(*Continued.*)

Our next visit was to the telegraph office, where we wire the baggage man at Windsor, and after waiting nearly an hour, receive word that it (the camera) will be in Hamilton at 1.50 P.M. Cheering news at last, but in the meantime will Uncle conclude we are not coming to-day and return home without us? We discover at this opportune moment there exists a dummy line between Hamilton and Dundas, and in a very short time we are rattling out of the city behind a snorting little engine. This ride was delightful, and not at all like what one would expect from the general idea of slow and sure old Canada. The road-bed is a little the crookedest I ever rode over, and the way we were yanked around corners, pulled up a sharp little hill only to be rushed down the opposite side, and swayed and hustled, would have entirely filled the views of a very live Yankee. At Dundas, at "Barney Collins" Hotel, we find Uncle patiently waiting. There we take our dinner, when, leaving my wife to rest until our return, my uncle and myself take the dummy line for Hamilton, and soon are again climbing those three flights of stairs at the Custom House, only to be confronted with the intelligence that we must visit the Assessor of Duties and have an "assessment made"—in other words, that functionary would inform me the amount of duties I would be requested to deposit before I could obtain possession of the camera, which amount would be returned when I got ready to leave the Dominion. So we again "traveled around the corner," and his royalty the "Assessor" states the amount to be forthcoming as ten dollars, which must be left with the Collector of Duties, which means another visit up the "three flights of stairs" where I am relieved of the ten dollars, and am furnished with a "claim" for the deliverance to me of the camera. Now we are "getting there," evidently, and with lighter hearts we make another trip

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"around the corner" to be very calmly informed that "my camera will be found at the baggage-room at the depot"—distance of about a mile and a half. "Shades of Moses," how I should have liked to fire off a few cuss words about then, but funny as it was getting, there was no help for it; so, accompanied by one of the Queen's officers we visit the depot, this officer regaling us all the way with the latest news pertaining to the prize ring, and worse than that, he would fire questions at us relative to the same subject, about which we were as conversant as we were of the inhabitants of the planet Jupiter; but it would not do to let the man think otherwise than that we were bosom friends, or at least ardent admirers of J. Sullivan, Jack Kilrain and the whole prize-ring fraternity. How we did rack our brain for some blood-thirsty piece of pugilistic news for his delectation, and how we did shake in our boots every time the villain asked us any question for fear he should discover we were such rank impostors and tyros in his pet field. But luckily we struggled through it safely until we reached the depot, and at length, *at length* we get our hands on that precious canvas carrying case—with an ominous jam, to be sure, on one corner, but still *the case*, which, as a sort of finale, must be opened for inspection—there might be a "house and lot" or a "Fenian" inside. We find on taking off the cover our outfit all O. K. except the trifle of the ground glass, which is smashed into 473 separate and distinct pieces. Right here I had occasion to use a little King's English? Oh, no! but too heartily thank some kind brother amateur for the hint given in some photographic journal which I had read, to always in going on a trip take along an extra ground glass. I had done so, and here I stood at last—at last with camera safely in Canada. I did not trouble myself as yet about getting it out again, but going on the theory of—"Sufficient unto the day is the evil thereof," abandoned myself to the pleasure of capturing all the views possible, from Dundas (around which little town are some of the finest rock scenery views to be met with anywhere) up into the country as far as Galt, a distance of 20 miles.

After a delightful visit of a week among relatives, old friends and old views, my wife and myself could have been seen one fine morning again climbing "those three flights of stairs" at the Custom House in Hamilton. We left our camera, received the ten dollars and proceeded leisurely toward the depot. The camera was to soon follow us, when from one of the officials (just exactly what he was we have forgotten) we were to receive a paper and check which would deliver to us the camera at Niagara Falls. Well, we waited and waited until we knew we would not have time to get up-town to the Custom House, where probably our camera was calmly reposing just where we had left it, and back again to the depot in time for the train, so we sat quietly, "saying nothing, like Paddy's parrot, but keeping up a divil of a thinkin'," until we saw the train which we expected to take at about 12 o'clock, for Niagara Falls, pull out of the depot. We could have danced a jig on the ashes of that Canadian Custom House at that moment with perfect, simple and unadulterated happiness, but we didn't—not much—we just took ourselves up-town again and found that camera not removed by one hair's breadth from the spot in which we had seen one of the Queen's supernumeraries plant it in the morning. We entered some (mild) protests, we were still in their power, but did not leave until the camera in the hands of that "bloodthirsty pugilist" accompanied us. Probably the presence of my wife forbade the opening of the prize-ring subjects again, for very little was said on the road to the depot, where, in due course of time, we got every-

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thing properly arranged, and about 6 o'clock found us aboard for the Falls. We had no serious trouble there with the box more than being obliged to open up the canvas cover and show its contents. In an old dry plate box were all my undeveloped Canadian views (paper films), and my heart came into my mouth when the official touched this box and pushed it one side to look at the empty holders beneath. Of course the undeveloped films were not dutiable, but if he *had* asked to see the contents of that box, what *would* I have done? He did not ask it, however, and a few minutes after we stepped from the train with the camera in my hand, once more on American soil and out of Canada. We had visited the Falls before, and as we only intended staying through the following day, our first business in the morning was to consign that precious camera by express to Alexandria Bay. Our route would take us back into Canada, across Lake Ontario to Toronto, and thence by rail to Kingston, where we would take the morning boat to our destination, but we did not care to take along the camera—no thank you—"enough is as good as a feast," you know.

We spent a very pleasant day around the Falls, and early the following morning took the New York Central cars down past the gorge of Niagara River, past Brock's Monument, and to Lewiston, where we boarded the "Chicora" for the trip across the lake, which was delightful, it being a very pleasant day, and about 11 o'clock we again set foot on the soil of her Majesty's Dominion, or rather on the docks, amid a pushing crowd of officers, hack-drivers and others. We were making our way along with the crowd, when suddenly I felt a hand laid on my arm, and a voice said, "What is this?" I turned and beheld by the silver badge on the man's cap that I was again in the clutches of a Custom House officer. I followed with my eyes the direction in which he was pointing, and calmly answered: "That? Why, that is a tripod." I had not sent it with the box by express, but had it wrapped up with my wife's umbrella. The next question came quickly, "Where is the camera?" He was evidently posted. I may have displayed a trace of bitterness as I replied, "The camera, I hope, is a mighty long way from here. It was," I continued, "sent by express from Niagara to Alexandria Bay." "All right," came the answer, "go ahead," and we "go-ed."

We spent the afternoon in Toronto, a live, pushing, busy city, and took train the same evening for Kingston, where we were awakened by the porter of the sleeper the following morning between 4 and 5 o'clock, and were shortly on the forward deck of "The Passport" en route for Alexandria Bay, which place we reached at 7.30 A.M., a short water trip, but very pleasant.

I will not prolong this paper with any description of our stay of two weeks among the Islands. Suffice it to say we found our camera in good order and made good use of it; but the writer is now a firm believer that what we chiefly need with Canada at present, is annexation.

PRINTING OUT OF A NEGATIVE IMAGE IN THE CAMERA.

BY W. E. PARTRIDGE.

SOME recent experiments in plate making with Professor Newberry's formula we think are well worth recording, as a visible image was formed on the plate in the camera. The proportions were those which the Professor published some time since in the pages of the BULLETIN. The object in making the plates was to obtain negatives with as fine a grain as possible. Speed was not deemed of any

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consequence, and no effort was made to obtain any rapidity beyond that which comes with cold emulsification, so called. The directions given were followed very carefully until the second batch of gelatine was added. Then by an accident in weighing soft gelatine instead of hard was used and the quantity used was five times as great as that called for in the formula. No effort was made to follow directions further. The mass was washed and melted afterward and the coating of plates at once begun. Four drams of melted emulsion were given to each 5 x 8 plate. It was supposed that the silver would be so greatly diluted by the soft gelatine that a larger quantity of the emulsion would be needed. The coating was successful and more than usually perfect; very few bubbles or spots were found. Drying, from an imperfect arrangement of the drying box, was very slow. Some of the plates did not become perfectly dry for more than a week.

So far there was nothing unusual noted except an exasperatingly slow drying. On a dark day in November, near the end of the month, one of the plates was exposed upon an interior. The subject was a group of plants near a window. On taking the plate from the holder in the dark room several strange spots were noticed. Though rectangular in shape, they were supposed to be spots made in coating until they developed into well defined windows in the negative. Another exposure on the same subject at 3 P.M. was then made. Time, ten minutes. Lens 6½ x 8½ Rapid Rectilinear Dallmeyer, wide open. The result was an image on the plate, faint but distinct, showing the window outlines, bars and the plants as light against the dark part representing the sky. In a word, the plates gave a negative by printing out directly. This emulsion when exposed to light prints at once to a deep blue gray. Negatives made upon the plates appear very thin, but print considerably better than they look. At first a considerable difference in density could be seen between those portions which dried first and those which took a week to become hard. This distinction, however, appears to be disappearing as the plates become older.

Further experiments in this line appear desirable. Possibly some of our older experimenters can contribute facts or experience which will throw light upon this subject. At present, so far as we know, this is the first case where the negative image has been visible in a gelatine plate after exposure in the camera before development. These plates are apparently much more rapid than the estimate given by the Professor in his articles. By rough calculation we assume them to be as high as fifteen or sixteen sensitometer, or about the same speed as Carbutt's B plates.

PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

BUFFALO, N. Y., February 22, 1889.

To the Editors of the BULLETIN:

As it may be of interest to members of the Photographers' Association of America to have some idea of the awards and a description of the members' badges intended for the coming convention, the following is now submitted: The grand award, which is to be presented for the best collection of photographs illustrating Longfellow's poem, "Evangeline," is to be the original bronze cast figures, about 3 feet in height and known as "The Roman Wrestlers," which was exhibited at the Paris Salon, where it was greatly admired and gained "honorable mention." The original was imported free of duty, and not even European copies can be now had of it, unless at very much enhanced price.

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For the medals a design has been secured which is entirely new and unique.

On the obverse side will be a fine head of Daguerre in bold relief, and on the reverse figures representative of American photography.

The die is to cost $250, and the medals are to be of gold twenty-four carats fine and finished in dead gold.

They will be placed in the shape of a badge with bar of gold at the top for an inscription of the winner's name.

Members' badges are to be of solid silver, oxidized, embellished with head of Daguerre, and may be worn suspended from coat lappel, as common with other badges.

They, alone, will be intrinsically worth the admission fee, while as souvenirs of the "Semi-Centennial of Photography," only possessed by members of the Association, they will be permanently invaluable.

Very truly yours, H. McMICHAEL.

TRIALS AND TRIBULATIONS OF THE PHOTOGRAPHER.

BY ABRAHAM BOGARDUS.

[Read before the Society of Amateur Photographers of New York.]

Now, ladies and gentlemen, I have been asked to talk on the "Trials and Tribulations of the Photographer." Well, I stood it for forty-one years, and I should be very sorry to undertake to tell you all of them. (Laughter.) It might take me another forty-one years to get through with it. But, fortunately or unfortunately, I generally try to make the best of everything, and what might have been a trial to many, I endeavored to laugh off.

I was told that the business was very unhealthy, but I tried to laugh and grow fat. I commenced at a hundred and twenty-five pounds, and finished at two hundred; so that it was not very unhealthy in my case.

In speaking of the daguerreotype (and we have just listened to a very interesting and a very excellent address) I want to say that I was a practical daguerreotyper from fifteen to seventeen years, and in looking over some old books of account, I believe that I made and sold to the public 200,000 pictures. (Applause.) So that I am something like the boy eating pie—I have had an enormous experience. (Laughter).

I well remember the 17th day of October, 1846. I placed at my door a little frame. I think it had four pictures in it, and at that date the people were very much interested in the daguerreotype. It was the "wonderful silver picture," and you would hardly have time to hang your frame out in the morning before there would be large crowds around it, all anxious to get a sight at the wonderful picture, and at that date a man who made a good daguerreotype was looked on as a scientific man. He was not a mere "machine worker," as photographers are called to-day.

I believe that not only in talking of photography, but in writing of it, there is too much latitude nowadays, and too much fancy writing. It is not practical enough. It is quite amusing to me to read six or eight or ten columns in one of our photographic journals written by some young man who has never stood under a skylight (applause), and yet he gives us directions as to how it should be done, and how to do it. Place that same man under the skylight and let him wait upon eighty people—all kinds of people, men, women and children—and let him do that for one day, and there would not be enough left of some of these writers to make a respectable funeral when night came. (Laughter.) I am glad I had a subject. I will try and stick to it, but I am afraid I will not.

I should be sorry to speak about any new developers. (Laughter.) I think there are 2,103 or 3,102 (laughter)—somewhere along there—and each one susceptible of two or three changes. I have some compassion on the brain of

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amateurs. As I understand, the lunatic asylums, like the learned professions, are crowded. And then, again, I have been asked if I would not recommend before this audience somebody's plates (laughter); I am too much of a coward for that. There are too many good plates in the market, and I would not dare to recommend one man's plates, for fear I would never see any peace and comfort the remainder of my days from the rest of the makers. In short, I would rather not do it. As I say, I am too much of a coward for that.

I saw a pretty good Irish bull the other day. It seems that Pat came very near being killed, but by some dexterous movement he saved his life and got away. Some one said to him: "Pat, you are a coward." "Well," said Pat, "I had rather be a coward for ten minutes, than be a dead man all the rest of my life." And so it is in regard to the recommendation of any specific plates; for if I did, I would never see a minute's peace. (Laughter.)

But there is one thing I would say, and with all the nonsense I want to mix a little sense: Get a good reliable plate and get a good developer and go to work and master them. Then after you have mastered them, if you can find some changes that are going to be better, all right; but if you are going to follow each and every one's make and each and every one's suggestions, you will never make a worker. (Applause.) In the old days of the daguerreotype, we had one developer, and I think sometimes to-day it would be a good thing if we never had but one. There would not be half the changes and mistakes and half the plates spoiled that you see to-day.

I remember once a very singular thing. We used to have to go out and take sick people. We had a little developing box that I could carry under my arm, the camera and the whole thing, and the mercury for developing the picture, and a lamp to heat it, and the mercury after use we poured out from the corner here into a little bottle. I went one day and made some pictures of a sick lady, and when I came to pick up my things to go home, I found I had not put my mercury in the bath at all; but my pictures came out just as well. (Laughter.) That was a very singular circumstance to me, but I accounted for it very soon. There was enough mercury in the iron developing box to develop a picture, but I never made that mistake afterwards.

In the olden time the public had a very hazy conception of the process of making a picture. The people at that time knew no more about how the impression was made, and not so much as the most ignorant do to-day. And they think if the machine is good, a good picture is the result, and that is all they know about it. And in those times they talked in this way: One man would show his superior wisdom (he was telling the men who were around him): "You look in the machine and the picture comes, if you look long enough." (Laughter.) Another one says: "It is not so much the looking, but the sun burns it in when you look." Another one settles the whole thing by saying: "It is not so much the looking, but the plate itself is a looking-glass, and if you sit in front of it long enough your shadow sticks on the plate." (Laughter.) I have heard those very remarks made myself.

We had a great many pupils in those days and everybody who could not succeed in something else started to learn Daguerreotypy, and the first question the pupil would ask was "How long does it take?" I was forty-one years at it, and I never learned it all in that time; and they had an idea you only had to get your machine, try it a few times and you had learned it all. I used to tell them I could not tell how long it would take any man to learn it, as one would learn more in two days than another would in two weeks.

Mr. Weston, who was on the corner of Broadway and John Street, told me a very amusing story. A man, he said, came from a neighboring city to learn to make daguerreotypes, and after he came in the room and was told what the price would be and the cost of the camera and all that sort of thing, he said, Very well, he wanted to take instructions. He was going to stay in New York two weeks. Mr. Weston coated a plate, which was about the plan Professor Laudy has shown us here to night, and he said, "Is that all?" and Mr. Weston said, "Yes, that is all; that is what you do every time." And the man said, "I am not going

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to pay board here in New York for two weeks for that; why, I can do that myself." And so he straightway took his camera and other necessary appliances, and in about four days after that he came back with fire in his eye and walked in, holding the camera by the nozzle, and said: 'There it is; it is not worth a damn." And Mr. Weston said, "What is the matter?" and he said, "It won't take a picture." And Weston coated a plate and put it in the camera, and brought out a picture at once. The man says, "I could not get it." "Of course you could not do it; you only saw me go through the motions two or three times, and you thought you knew it all." He said: "I set it in front of the window where I worked, and about a half a mile off there was a hill. Do you suppose that was the matter? Do you suppose that hill made the trouble?" (Laughter.) I mention this incident simply to show you what perfect ignorance there was in regard to it.

And then the name of the "daguerreotype"—as to spelling it—that was almost an impossibility. Some called them "doggertypes," some "daggertypes," some "degyrotypes," and the vulgar "dogtypes." (Laughter.)

And the "dark room" was a place about which a great many people had a very curious and amusing idea. Some would ask, "What do you do in there?" One thought you went in there and did some hocus-pocus and some sleight of hand work to develop the picture; and another would say, "You need not be so particular to shut that door; I don't want to steal your trade." We were not so much afraid of the trade as we were of the tools, and in those days you did not see people bring a crowd of persons together to explain to them some new method of development, or a thing of that kind, as you do to-day. Every man that got an idea kept it to himself, and he would never let another photographer or daguerreotyper go into his dark room. Every man was the personification of all wisdom.

And then the improvements came so fast! What we learned one day, in two or three days was of no use, for something had been brought out in the meantime that was entirely new and superseded what we learned a day or two before. The advance has been very rapid in photography.

During my earlier days, in 1846, on a dark day I have often kept people sitting four minutes for a picture. Now, if some of you ladies and gentlemen will take out your watch and time four minutes and tell a man not to wink (laughter), you would see what a very difficult thing it was at that time; but the usual sittings were from thirty to forty seconds, and, finally, they were reduced down to ten or twelve; but I have been compelled to take four minutes many a time on a dark day.

Now, as to the daguerreotype, I want to mention one fact which is not commonly known. The daguerreotype will not fade, and I know what I am talking about when I make that assertion. While it will not fade, it may become tarnished on the surface, but that can be easily cleaned. I have cleaned a great many of them and made them just as perfect as they were the day they were taken, provided some person has not taken a handkerchief and rubbed it out. I remember a case: Only a few years ago a lady came to me with a half-sized picture, and you could not see anything at all upon it. She wanted to know if I could clean it; and I took it and cleaned it, and in about five minutes I brought it to her and showed it to her and she fainted dead away in a moment. It was her husband, who had been dead twenty years, and she had not seen the picture in fifteen years. It was so completely covered with a film that there was nothing to be seen, and I brought it up as good as it was originally. As I say, the lady fainted immediately. It was just as if her husband had been brought back from the grave for her to see.

The earliest photographic literature that I remember was "Humphrey's Journal," and a journal—I think called "The Photographic and Fine Art Journal"—by Mr. H. H. Snelling. If there were earlier ones, I do not remember them. I have several of the pictures by which they were illustrated after they commenced making photographs, but they are pretty poor things compared to what we make nowadays. Still, at that time, they were considered wonder-

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ful. I well remember the first paper picture I ever saw, and the first little *carte de visite* that I ever saw—a friend of mine brought it from Paris. It was a full length picture of a man standing by a fluted column, and his head was a little larger than the head of a pin (laughter). I laughed when I saw it, and thought it was a very curious little thing; but, however, it was not long before I was making them at the rate of a hundred to a hundred and twenty-five dozen a day.

I have some of the old photographic publications, and I want to state to you, gentlemen, that this dry plate you are using to-day is the work of care and experience and experimenting almost beyond our reasonable conception. Men have worked with mind and brain for half a century to bring the art of photography to its present status, and they know of the difficulties that were encountered before its success was ultimately obtained, and they can better appreciate its worth than the novice of to-day who finds his apparatus quickly and easily adjusted, his plates and developers all prepared, with printed directions how to use them. In this respect, photography is far different at the present day from what it was in former times. The dry plate, now so universally used, has required an amount of time and labor, discussion and money upon its preparation that one would hardly believe. In its early stages it was thought that it would be desirable for out-door photography, but the long exposure that was necessary—nearly three times longer than the wet plate—made it doubtful whether it ever would be available.

(*To be continued.*)

THE DISCOVERY OF THE DAGUERREOTYPE PROCESS.

BY L. H. LAUDY, PH.D.

[Read before the Society of Amateur Photographers of New York, January 31, 1889.]

Ladies and Gentlemen: I am conscious of my own unfitness for the honor you have conferred upon me on this important occasion, knowing of others that have a superior claim for this distinction, those that have given the subject more careful study and would be better qualified to address you this evening, and it is to be hoped that we may hear from them on this subject.

I am sensible of the greatness of the field, and that others may have an opportunity to address you, my remarks must necessarily be slight and imperfect.

I hope you will understand my position, and I will trust to you for an equitable consideration.

Mankind little reflects what a privilege we enjoy living in this nineteenth century, for included in it are all the great discoveries. Truly, this is the age of progress and invention. We are better prepared to-day to accept the announcement of any great discovery, and to look upon it with less incredulity, to encourage and possibly capitalize it, than were the people when the announcement was made of actually impressing the image so often seen in the camera obscura, and producing in all its detail the reflected image and making a permanent impression upon a sensitive surface.

This paved the way for other discoveries, and to-day we have many important inventions that contribute to our welfare and happiness.

We have the best and cheapest farm implements, fire engines, fire-arms, fastest steamers and best railroads, telegraph, photography, anæsthesia, sewing machine, electric light, telephone, phonograph, and last, flexible films. If any nation during the same time has done more, or as much, the fact is not generally known.

We are assembled here to-night to celebrate the fiftieth year of one of these many inventions, the greatest of all discoveries—photography—and to pay homage to the illustrious names of Niepce, Daguerre and Talbot, not forgetting our own countryman, Dr. Draper. The name of each is associated with that which he accomplished—names that will forever shine forth as fixed planets in the shrine of invention. They will be everlasting on the tablets of memory,

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monuments in themselves, the best that can be erected to everlasting fame, and will never cease to be heralded to all the world.

We need not write the history of these great men ; it is too well known, for their noble gifts to science will ever share the same position that follows with their fame, and to-day we reap the golden harvest of their genius and invention.

You may wonder why I have added the name of Dr. Draper to the list. My reason in so doing is because Daguerre never succeeded in taking likenesses; when the French government purchased his process, it was only adapted to statuary and architecture. The first successful daguerreotype portraits were made in the New York University, 1840, by Dr. Draper, who overcame the optical difficulty which had defeated all the previous attempts. When the news of the discovery reached Europe, it was ascribed to the peculiar brilliancy of the American sun; but this theory was hard to reconcile with the success which attended the American artists who soon prosecuted the business in London and Paris.

Opinions may differ as to the real date of this important celebration; whether it should be chosen from the date of the discovery or the public announcement before the Chamber of Deputies by M. Arago, are matters of minor importance.

Each progressive step in photography is worthy of special recognition, and it is to be hoped that steps will be taken to celebrate the occasion of that important date upon which M. Arago read the paper before the French Academy of Science.

The ultimate movement in all cases establishes the fact that this is the most wonderful invention of the nineteenth century, and it reflects great credit upon the society in taking the initial steps to make this year one of celebration and commemoration to these great discoveries.

On January 31, 1839, the results of Daguerre's labors came forth fully finished for use.

To France alone, for the daguerreotype, is all honor due, and the liberality with which it was purchased and given for the benefit of universal science will secure to France the gratitude of all nations.

This wise and generous step was at the suggestion of her most eminent philosopher, M. Arago, to whom Daguerre had confided the secret of his art.

Struck with the splendor of the discovery and foreseeing the advantages which science and art would receive from its application, he induced the French government to offer an unusual pension of 6,000 francs to Daguerre, and to Niepce a pension of 4,000 francs, for surrendering to the public the use of their inventions.

When the secret was made known and the pensions granted, the seals which retained the secret were broken and the daguerreotype became the property of the world.

The genius of men like this comes like an incantation of science and descends upon the world but once in a series of years, and the peculiar assemblage of faculties requisite to produce these wonderful results are seldom found together, each possessing that persistent will, and all claiming to share in the great discovery; some giving the result of their labors to science, others pensioned by a government, and to one must be added the desire for a patent granted by the English laws.

This does not detract from their fame. They have accomplished enough to crown them all founders of our beautiful art.

And while the invention has afforded employment to thousands, it may be safely said that it has given to art the greatest stimulus it has received in modern times.

The colors of genius are determined by the ray incident on the first prism and the light once decomposed by refraction no further refraction can again decompose. It is thus with photography ; for to-day it remains the same incident ray (the camera lens and silver salts are in principle the same that were used by the early investigators), and no further change has taken place, and it is doubtful if any ever will. .

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Many topics are important enough to deserve a separate consideration. All that can be alluded to in this short space of time will be to point out objects best deserving our attention; while, if time permitted, we could present a diorama of men all more or less connected with this history. To mention a few of the many may not be out of place—Niepce, Daguerre, Talbot, Draper, Fyfe, Claudet, Fizeau, Biot, Arago, Hunt, Ponton, Lassargne, Netts, Herschel, Moser and Lerebours.

Horace, Vernet and Goupil made daguerreotypes in Spain; Fredrichstal traveled in Central America for the Prussian Government; Davidson made first camera (optician of Edinburgh); Adamson first made pictures in New York.

If time were at my disposal, I should like to inquire into the various benefits that result from photography, and to show that it has had as great an effect upon civilization as the telegraph, telephone and steam engine.

It stands alone, occupying a distinct position and furnishing to mankind a new vision that can penetrate into distance or the past, a retina as faithful as the human eye, but whose impressions do not perish with the wave of light that gave them birth. It has had a birth and a growth among the people; it has, like many other discoveries, been singularly successful in interpreting the wants of the day and serving popular welfare.

The noble works of the great masters are no longer the exclusive property of a single individual; they are now reproduced by the aid of photography and given to the world or published for the benefit of society.

The whole world is brought to our view by the aid of photography, and to-day we find it occupying an important position in science, art and all industries.

To me it has always been a pleasure to look over the history of these great men, and to ramble through the literature of the important event has offered many pleasant hours of study.

To-night I yield the field to others, for my mission is rather to describe the process than to describe the men.

I am inclined to think that I shall best meet your wishes if, instead of dwelling on the history of these great men, we include them all in one great class of inventors and benefactors to mankind, and in as brief a manner as possible outline the daguerreotype process and describe the use of the apparatus that has been loaned from the photographic collection of the School of Mines Museum.

The daguerreotype process is wonderful for its extreme simplicity, and when once explained it seems strange that it was not thought of before. The crowning wonder of all is that it was made at a time when materials were not only difficult to procure, but far from being pure.

Iodine was discovered in 1812 by Courtois, and bromine by Ballard in 1826.

Little did they dream that their discoveries would lay the foundation of the science of photography, and it is surprising to think that no other compounds have ever been used with success, and it is not likely that others will.

[Professor Laudy here went through the operation of buffing a silvered plate; then illustrated the use of the iodine sensitizing box and the funnel-shaped mercury developing bath. He also showed several old specimens of daguerreotypes and Talbotypes.]

FIFTEEN YEARS' EXPERIENCE OF A DAGUERREOTYPER.

BY ALEXANDER BECKERS.

[Read before the Society of Amateur Photographers of New York, January 31, 1889.]

In response to the request of your Corresponding Secretary, Mr. Duffield, I hereby give an outline of my experience in the history of the daguerreotype, for a period of fifteen years.

The details of this antiquated, senior branch of your art can interest you only in such parts as are similar. A comparison of the two, however, will show the progress of the half century we commemorate to-day, as also the centennial of the birth of Daguerre.

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The first daguerreotype I saw, was made by Robert Cornelius, in Philadelphia. His laboratory was conspicuous. On the outside could be seen a large mirror, swung on a bracket, for illuminating his sitters with reflected sunlight. The use of bromine was not yet known in 1840, but Boudine introduced it soon after. In the same year Robert Chilton called on my brother to make hyposulphite of soda, offering four and a half dollars per pound, stating that the French article cost over five dollars to import, although still impure. Thus the first hypo was made here at the corner of 23d street and Fourth avenue, the present site of the Young Men's Christian Association. Orders for other chemicals followed, and in 1843 Louis Beckers was the first to manufacture photographic chemicals exclusively, at Old York Road, Philadelphia.

In the same year I entered the daguerreotype business of Mr. Fred Langenheim, in the Merchants' Exchange of Philadelphia. Here there was little to be seen of the things you see nowadays in a photographic art gallery. A kind of a hiding-place for a dark room, and a spyglass-like camera were all the indications of the mystery I was to learn. The camera rested on a candlestick-like tripod, with three set-screws for adjustment, and was placed on an ordinary table. To interchange the ground glass and round daguerreotype plate, it was necessary to unscrew a flanged ring, and replace the same by a reverse motion. For the adjustment of the focus, there was the rack and pinion, as Voightlander's instruments still have. This instrument was one of the first made according to the mathematical calculations of Professor Petzval, of Vienna, having two achromatic lenses. It had been sent by young Voightlander to his college-mate, William Langenheim, as a present, with supplies and instructions, but also the warning not to try daguerreotyping, unless he had courage enough to try five hundred times more after failing with the first hundred pictures. William Langenheim, a lawyer, did not have the courage, but his brother Fred had, and succeeded so well that he was offered six hundred dollars for that odd camera.

The manipulations of preparing a daguerreotype plate will not interest you much. I should state, however, that the production of a chemically clean surface on silver, is a difficulty that increases four-fold with the size of the plate. Another difficulty is the use of the chemicals in a volatile state. The iodine can be controlled by sight with faint day-light, but the bromine only by even temperature and constant practice.

At Langenheim's necessity soon introduced a square camera, with square plates and holders. A high tripod was also used instead of the table. In the summer of 1843 the first dozen of small Voightlander objectives, such as are still on the market, were imported. Soon after, four larger ones, for 6 x 8-inch pictures, arrived. In the fall of that year, Phillip Hass, formerly of Paris, showed Fizeau's method of fixing the image on the plate by cold gilding. Soon after the picture was made more brilliant by heating the plate while the gold solution was on it. In that winter the first polishing wheel was made. It was constructed like an ordinary grindstone, worked by a treadle, the wheel being cushioned and covered with buckskin. With the aid of this machine, and after weeks of hard labor and many experiments, we succeeded in making the first good large daguerreotype of 6 x 8 inches, called whole size; half and two-thirds size were advertised and made with success. At that time we also succeeded in making a picture of a sick lady at her own residence, which had been considered impossible.

In the spring of 1844 Mr. Edward White bought one of the large Voightlander instruments, and for him I made the first large daguerreotypes in this city at 175 Broadway. There were then but a few daguerreans here. They were I. Gurney, Anthony, Edwards & Chilton, Augustus Morand, Van Loan, Burgess, Brush, Weston, Artho, Insley, Plumb, and others I cannot recall.

I remained with Edward White until December, 1844, when it became impossible to make a picture in his operating room on account of the extreme cold, for Mr. White would not allow a fire in the place over night. Then I commenced business for myself, at the corner of Nassau and John streets, and after May, 1845, at 201 Broadway, under the firm of Langenheim & Beckers, agents for Voightlander & Louis Beckers.

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At that time the large Voightlander objectives had a chemical and a visual focus, so that in order to make a large, near picture, the lenses were moved out one-eighth of an inch, while for usual work the ground glass was set permanently one-sixteenth of an inch nearer than the plate. That summer I took a view of High Bridge before the scaffolding was removed. This picture was taken for the engineers, and was perhaps the first one ever taken here in aid of architecture. By taking out-door views I discovered that the plates increased in sensitiveness with the time between the preparation and exposure, and in 1848 obtained a sharp picture of a procession in motion.

In 1847 I began to use a speculum metal mirror, in order to have my pictures not inverted. For very unsymmetrical faces this arrangement was quite indispensable in order to get a likeness. The mirror was attached to the instrument at an angle of 45 degrees. The use of the mirror required double the time of exposure. It was made by Fitz, Senior, the optician, and was used for years after.

In 1848 Fred Langenheim bought the Fox-Talbot patent for the United States, at six thousand dollars. He introduced it here and failed in the undertaking. Our daguerreotypes were taken so perfect that they were preferred to any Talbotype. Abroad the superiority of our pictures was attributed to our clear atmosphere until American Daguerreotypists, as Dentists, took the lead all over the world.

In 1849 my firm was changed to Beckers & Piard. Having now more time, we succeeded in substituting machinery for cleaning our plates, and thus obtained cleaner and better plates in one-third the time required by hand.

In 1852 M. M. Root, of Philadelphia, made two pictures on one plate. We succeeded in making four on one plate, and in such a way that the exposed quarter was in the center of the field of the lens. It was then a great relief, as locket pictures were in fashion. In 1856 Mr. Ormsbee patented this same multiplying plate holder and collected considerable money on it, until my priority made his claim void.

The production of stereoscopic portraits was the next task. Marchner, of Philadelphia, made patent cases to show these pictures in a very neat way. In 1854 F. Langenheim had commenced to manufacture stereoscopic views on glass. He sent me three dozen of his make, to find sale for them here. At the first exhibit of these pictures one dozen of them were broken. This loss set me to thinking how to find an arrangement to show and secure the pictures against breakage, and in 1857 I obtained a patent for my revolving stereoscope. The increasing demand for this machine induced me to sell my daguerreotype business in 1858.

Thus I was relieved from satisfying the vanity of each individual beauty of this world, and ended my career as a daguerrean.

EARLY DAYS OF AMATEUR PHOTOGRAPHY

BY HENRY J. NEWTON.

[Read before the Society of Amateur Photographers of New York, January 31, 1889.]

In speaking about amateur photographers in the early days of this art-science, it would be a convenient thing if I could give you a generally accepted definition of the word "Amateur Photographer." At the first meeting held for the purpose of organizing this society, this question was discussed and certain conclusions arrived at, but no authorized definition has been incorporated in the Constitution or By-Laws of this society. I am of the opinion that it should be done by every amateur society as a safeguard and protection from dangers which are liable to beset such an organization when in the hands of incompetent, dishonest or designing persons. In the use of the word "amateur" to-night I shall mean a person who works in or experiments in photography from other reasons than the pecuniary benefit which it will be to him.

On the 10th of August, 1839, the secrets of Daguerre and Niepce were given to the world through the French government, who, through the influence of

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Arago, had purchased the secrets at the price of a life pension of 6,000 francs a year to Daguerre and 4,000 francs to Niepce.

In less than a year from the above-mentioned date, Paris was swarming with amateur photographers.

At the windows and on the balconies of the houses could be seen the little instruments adjusted with the sensitive plate waiting for the light to impress an image of some favorite object in its silent and mysterious way.

The city of Paris was thoroughly excited over the wonderful discoveries of their townsman and Niepce. The subject was on every tongue. Friends and neighbors on meeting could talk of nothing else. For a month or two the fever ran riot with business and reason; but in this short time it became an old story; the curiosity and wonder had ceased, because they had become common and familiar; so this first flourishing and prolific crop of amateurs soon passed away, and their silence became as conspicuous as had been their noise.

The fever had subsided without the administration of any drugs. Nature seemed to perfectly understand the excitable character of the French people. In Europe and this country scientists, especially chemists, became deeply interested and studied it from a scientific point of view. Professor John W. Draper, of this city, soon became an expert in making daguerreotypes, and claims to have been the first person to make a picture of the human face, and that was the face of his wife. The last time I saw this picture was when Dr. Draper showed it to the members of the American Photographical Society, of which he was President. This was not a society for amateurs exclusively, but professionals as well. This society was organized somewhere, I think, in 1858 or 1859. In 1861 Mr. H. T. Anthony organized the "Amateur Photographic Exchange Club." At this time amateur photographers were few, and to be one meant something very different from what it does to-day.

To succeed then meant hard work and study. You were required to know how to make almost everything connected with the production of a photographic print. You must know how to make collodion; how to coat a plate and how to sensitize and develop it; how to construct the silver bath in which the plate was sensitized; how to make the developer; how to clean the plate; how to prepare the nitrate of silver bath for sensitizing the albumen paper; to fume, print, tone and fix the prints; how to make paste, and how to mount the prints. The amateur of those times was further required to make himself familiar with the chemistry involved in all this work: first, in order that what he did he might do intelligently and successfully; and, second, to be qualified to determine with a degree of certainty what was the matter when his chemicals gave unsatisfactory results.

The negative bath was one of his most treacherous friends; he could not predict, with any degree of certainty, what would happen to the next plate by the result on the one immediately preceding it. There seemed to be a demon lurking in the dark room, watching for an opportunity to get you into trouble, and, as the negative bath was the most sensitive, he would take advantage of this weak point, and if he had got into it bodily with all the sulphur and cinders he is supposed to have adhering to his external person, and stirred it up vigorously with his fabulous pitchfork covered with lava from the pit, it could not have made the bath worse than it would sometimes get in an incredibly short time; and this would always happen at the worst possible moment. If you had invited some *particular friend* to have his picture made, some one to whom you wanted to show what you could do, and what beautiful negatives you could make, how expert you had become, then this demon delighted to get into the bath and muddle it, so that, do the best you could, nothing but fog, fog would be the result. The amateurs of those times wished frequently that Job had lived in their day and had become an amateur photographer; they did not believe he would think a few boils of any account, or if he did he would not have taken the first premium in a competition for patience.

It was such vexatious trials which kept the ranks of amateurs thin, and when one happened to be exposed and took the fever he would get over it in a year or

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two, and so complete would be the cure that you would never suspect that anything had been the matter. There were a few exceptions to this rule, which was when the trouble became chronic. I could point to a few examples of persons so affected—your speaker was one of that class. To him there is a fascination and a satisfaction in experimenting.

The development of an exposed plate brings one into close and intimate relation with nature. You are admitted into one of her interior sanctuaries, while she places in your hand one of her magical wands, and while you look at the white plate before you, lo! a form begins to come forth like a spectre from its winding sheet, and apparently it throws off fold after fold of its snowy environments until it stands revealed in perfection and beauty. What can there be more wonderful than this? With the market supplied with ready-made plates of great variety, so that the most fastidious can be suited, the path of the amateur has become one of comparative ease and pleasantness, and the result has been a great increase in numbers and amateur societies. There is every prospect that this state of things will not only continue, but greatly increase. Photography is one of the three great discoveries of this century—the steam engine, the electric telegraph and photography.

In looking back through the past centuries where can there be found three great discoveries so near to each other?

There are no five centuries that can show anything like the gigantic strides in discoveries, knowledge and general advancement of the human family, of this one present century. It seems the blossoming time of all the past. These discoveries seem to be the offspring which nature gives us as the fruit of centuries of travail and pain. Copernicus, Galileo, Kepler and Newton were voices in the wilderness preparing the way for the dawning light of the present time. It is but a prophecy of what will be revealed in the future.

The barriers that heretofore have hindered the car of progress are being forced to give way. We, to-day, are only witnessing the first faint ripples of the incoming tide. If we contrast the present civilization with the time when men lived in caves and holes of the earth with wild animals, it will be found difficult to realize that the present can be the product of such a past. The way from savagery to civilization has been a longer and more terrible one than we can well conceive of. Only a fraction of the human family can be called civilized; generations upon generations will come and go, leaving scarcely a sign of advance among the semi-civilized and barbarous nations for long ages to come.

Progress in the future will no doubt travel with accelerated speed. The light and energy at the disposal of the nations in the lead at the present time are being felt as a potential force in every part of the globe.

STAINED COLLODION.

A. M. DE SILVA.

READING recently an article by Dr. Eder on the Staining of Collodion and Collodion Emulsion Films, brought to my mind an old-time experience which might be of service to those about to try this method. In 1874, having a number of interior views to make, I tried the effect of staining the collodion. My experience was that the dye washed out of the collodion, coloring the bath solution, which very soon gave out, and I could obtain nothing but foggy plates; besides, I was unable to keep my plates for any great length of time, at least not nearly so long as without using the stained films. Another thing, I never could doctor up the baths so that they would work sufficiently well to please me. If I remember rightly, I was pleased with the results, and gave up the use of the stained collodion simply because, with everything in good order, I could keep my plates for a very long time (some of the exposures being as long as two and a quarter hours) and obtain equally as good results, so that any advantage gained

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was more than counterbalanced by the uncertainty of the keeping of the films, the rapidity with which the silver solutions were put out of order and the difficulty of getting them right. I do not intend to dissuade any one from trying the staining of their films, but merely as a word of caution, advising them to try the experiment by all means, but with a small quantity of silver bath (new bath preferably), and not risk their regular working solutions.

The above note was received some time since and its publication has been delayed because it was lost. Now that we have found it we think that it should be well considered at the present time when ortho-chromatic work is the order of the day.—Eds.

OUR ILLUSTRATION.

The portrait of the talented little actress with which we illustrate this issue of the Bulletin is from the studio of Mr. George G. Rockwood of New York. The Mary Anderson Company contains many excellent actresses, but there are none among them that are so young as the subject of our frontispiece and so full of promise. The picture is characteristic and one of Mr. Rockwood's best efforts. The story of Mamillus is a sad one, and the expression on the face of Miss Hoare is wonderfully in keeping with the events of his short and unhappy career.

OBITUARY NOTES.

We regret to have to record the death of M. Henri Boissonnas, the well known photographic merchant, of Geneva, Switzerland, who passed away on January 26th last, in the fifty-sixth year of his age. M. Boissonnas was a man of much business ability, and had a progressive spirit in all things pertaining to photography. We tender our sympathy to his bereaved family and associates.

We also regret to record the death of William Weightman, Jr., M.D., the junior partner of the world-renowned firm of chemical manufacturers, Messrs. Powers & Weightman, of Philadelphia. He passed away on February 11th, in the forty-third year of his age. His associates are assured of our sincere sympathy.

Cannot keep house without it. John Esmay.

The Annual received. I am very much pleased with it. S. J. Chase.

I do not know how I could get along without the Bulletin.

Wm. L. Price.

I take several photographic papers and the Bulletin holds its own, at least to my notion. O. A. Markey.

While so many sound its praises, it is only necessary for me to say that it is exceedingly valuable to me, and I would not be without it.

George N. Moore.

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ANTHONY'S
Photographic Bulletin.

EDITED BY

Prof. C. F. CHANDLER, Ph.D., LL.D.,
Aided by ARTHUR H. ELLIOTT, Ph.D., F.C.S.
and a corps of practical assistants.

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E. & H. T. ANTHONY & CO., Publishers.

AMATEUR PHOTOGRAPHIC SOCIETY OF BALTIMORE.

REGULAR MEETING, FRIDAY, FEBRUARY 15, 1889.

President ISAAC T. NORRIS in the chair and twenty-one members present. After the usual routine business a lot of flash-light pictures were shown by Messrs. Williar and Quartley; views taken in the late Charcoal Club exhibition of paintings, draperies, vases, etc.; also some excellent prints by Messrs. Williar, Onderdonk, Binns and Gresham.

Some of our members having in view the coming lantern slide exhibition have been working hard to get some nice slides, and judging from those exhibited at the meeting above referred to, I am quite sure that we are going to have the best entertainment that the club has yet enjoyed since its inception.

In order to experiment on these slides some of our members have clubbed together and bought a fine oil lantern for the use of the society, and we shall now have every opportunity to test our slides thoroughly before presenting them to the public at an exhibition. The all-absorbing topic now is, as to who will be lucky ones in the contests that the society have offered four prizes for, and of which I have previously advised you, viz., four handsome gold medals for the best two instantaneous and the best lantern slides. The fourth prize goes to the ladies; and judging from the work of the ladies that I have seen, I am quite sure that had the prizes been left open to the ladies to compete in all, they would have been second to none, as witness most excellent results both in time and instantaneous work; and more especially are they deserving of notice owing to the extreme care taken in their composition, which is certainly first class in every respect. After some discussion on various topics of interest to the amateurs, Mr. Daniel Miller had his lantern set up and showed the members a fine collection of professional slides, and later a lot of slides of his own production, as also some of Messrs. Williar, Binns, Gresham, Trimble and others, after which a vote of thanks was tendered to Mr. Miller for his kindness in showing the slides and for the use of his lantern. Meeting adjourned.

HARRY D. WILLIAR,
Secretary.

LOWELL CAMERA CLUB.

THE first regular meeting of the club was held at Morrill's studio, February 19th. The club organization had been completed at the special meeting called a month previous, but the enrollment of members was left until the Constitution and By-Laws then adopted could be copied into the club register. The membership now numbers thirty-two, including several ladies.

The first business before the club was to take action upon a place of meeting. Two photographers have proffered to the club the use of their reception rooms for a place of meeting. It was announced by a member that a room in Mechanics' Hall building might be secured at a reasonable price. As there was some difference of opinion, the matter was recommitted to Committee on Rooms to make further inquiry and report at next meeting.

A communication from the Providence Camera Club regarding the formation of a New England lantern slide exchange was next considered. A committee consisting of J. D. Gould and G. A. Nelson was appointed to confer with members, and, if it was thought practicable, to report in favor of joining the exchange if one should be formed.

The club library at present consists of half a dozen of the best photographic magazines,

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the annuals, and the latest and best books on photography. It was voted to keep the library at the photographic rooms of A. H. Sanborn & Co., Central Block, until a permanent headquarters could be secured.

The subject for the evening was "The Flash-light." Mr. H. W. Barnes read a very interesting and instructive paper, explaining the development of the idea of using magnesium as an artificial light for use in photography. He illustrated each step by burning the magnesium wire, the powder with gun-cotton, compounds of various kinds, and lastly the magnesium lamp.

Mr. J. D. Gould showed and explained his new apparatus for burning magnesium powder in large quantities. With this lamp four (4) grams of the powder may be burned at one flash, which affords sufficient light to take large group pictures with good results.

Several cameras were focused upon the company, and it was expected good pictures would be secured, but owing to the bursting of the large rubber bag used as a reservoir for compressed air for blowing the powder, the results were not quite satisfactory.

The negatives obtained, however, indicate that without accident well lighted pictures of large groups may be secured by the use of this lamp.

A vote of thanks to Mr. Barnes for his valuable paper was unanimously passed ; also to Mr. Morrill for the use of his reception room.

Adjourned. GEORGE A. NELSON,
Secretary.

CASE SCHOOL CAMERA CLUB (CLEVELAND).

THE demonstration of the Willis & Clements process of producing sepia platinotype prints, which was given this afternoon (Friday, 22d) by Mr. Fred A. Coleman before the club, was all that could be wished for. The prints came out in fine style, and were the admiration of all present. In the absence of *President* Hall, *Hon. Vice-President* Smith occupied the chair. Mr. Kent Jarvis was elected a member. Subject for next meeting not announced. MILTON B. PUNNETT,
Corresponding Secretary.

NEW BRUNSWICK CAMERADS.

REGULAR MEETING, FEBRUARY 21, 1889.

PROFESSOR AUSTIN, the *President*, drew attention to a number of recent interesting matters in photographic science. Experiences with hydroquinone were given, and all were favorable. Dr. Tredell spoke of the different methods of compounding the hydroquinone developer. Forty lantern slides were shown. Those prepared by the wet plate process were particularly clear and sharp. A new electric lamp was tried with the slides, but did not give a perfectly even illumination. Adjourned.

HARVEY TREDELL,
Secretary.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

REGULAR MEETING, JANUARY 8, 1889.

(*Continued.*)

TAKING a plate of a sensitometer 25, and using F-8, as Dr. Piffard states, which I believe is the proper aperture to use at all times, one ought to gauge the plate by the light they have to use. Sometimes, in extreme hot weather, a Carbutt B plate I have used for instantaneous pictures. By using stop F-8 you get atmosphere in your picture. The main object, or the thing you take, will be in focus, and the background, as it appears to the eye, in diffused focus, which is more correct. A good many people say that by using a small stop we get everything on the different planes in focus, so that the foreground, the middle distance and extreme distance will be sharp. But the flatness is something terrible.

Now, in the matter of the development of these plates : if you take a slow plate, using any developer you please, it is easy. This plate which you are using we will suppose contains a good deal of silver; you get an impression on that silver, you have got silver back of it, you reduce it with your developer and you get a good, vigorous image. With a rapid plate (a good many of them) there is not silver enough in them. This is done in getting the speed in the plate, and in order to get speed they leave a portion of the silver out, and you have to make it up in the development. A plate of the sensitometer of 25, any average person can develop; but when you get up to 27 degrees Warnerke, or beyond, or up to 50 degrees, or what Cramer calls his "greased lightning plates" of 70 degrees sensitometer, then it is not so much fun. You make instantaneous exposures, and you want instantaneous development, but you do not get it. You go into your dark room, sit down or stand up, just as is the more convenient, and put on your developer. Your formula says so much of this and so much of that, some say weak and some strong. You put it on

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and it comes out weak and thin, and unsatisfactory. You look at it and proceed to fix it. It is thin, and you cannot see any detail, and say: "That is undertimed; that lens is not good." You go and get another lens, and you try it, but with no better success. Then, after a while, perhaps, the plate gets into the hands of somebody who has had considerable experience, and he looks at it and says, "It has a lack of detail in it." And the books say, if there is a lack of detail, the plate is undertimed; but it is just the opposite in extremely rapid plates. Taking Cramer's sensitometer numbers of a winter-made plate, of sensitometer 35, you will find that there is silver enough in the plate to be developed, and you get full time, providing you use an aperture of F-8, regulating the speed of the shutter to get the correct time.

The developer should not be put on weak, although a good many formulas read that way.

To develop instantaneous exposures instantaneously, the developer should be put on strong, soaking first in pyro, if you use pyro; but if you use hydroquinone you had better use it in two solutions, soaking first in the hydroquinone, and using the method of separate solutions for the development.

If you take a plate of a sensitometer of 50, which we will say is about as fast as the average person can develop in the average light that is used to develop in, the developer should be put on the plate extremely strong. The development should be concluded in about five minutes.

At the point where most people would stop development is just the point where they should proceed. After the plate begins to kind of fog over, don't pay any attention to it, but pour that developer off and throw it away. It has spent itself. Whatever pyro or hydroquinone there may have been, it has had a tanning effect on the film, and it prevents any alkali you may add from penetrating into the plate and doing its work. You take the plate out of the developer and throw the developer away and rinse the plate off with water and place it in a pan, while you prepare some fresh alkali solution, and flow the plate, until you see the plate gain density, and carry it along until it begins to gray over well, then put it into your hypo bath, containing a little alum. The alum will prevent its being stained, and also acts as a kind of reducer, cleaning out the shadows, and you have a clear, dense negative on an extremely rapid plate.

Now, in my practice, I use a pyro developer. I make it in three solutions, mixed by hydrometer. The sulphite solution tests 60 degrees by hydrometer, being in one solution, in a glass stopper bottle. The alkali solution is carbonate of soda and water, and the test is 20 degrees. The pyro is mixed with distilled water; but whether you use distilled water or not, is immaterial; acidify with oxalic acid, and pour in 12 ounces of water, and into that 1 ounce of pyro. You will find that the pyro will keep dissolved in the water, either in the light or away from it.

Now, in using this developer, you take a sufficient quantity of the sulphite solution and cover your plate, and to that you add from 2 to 3 drams of pyro solution and from 2 to 3 drams of carbonate solution, and no water whatever. You will find this is a very powerful developer and especially adapted for the Cramer plates. If you use it on a Carbutt plate it should be diluted one-half and less pyro used. A convenient method of using it is to first soak the plate in pyro and sulphite solution alone for a minute, then place it in the alkali and watch the effect. If it is overexposed, apply the bromide of potassium and check it at once. Do not be afraid of it, but put it on in good quantities. Then soak the plate in pyro and sulphite solution for a minute, and to this gradually add the original developer, drop by drop; by this method a good negative will be secured from an over-exposed plate. As to the correct timing of rapid plates: it is more the amount of light which strikes the plate at the moment than any subsequent light which comes after. Now, a number have used a good many rapid plates in taking flash-light pictures; for instance, they would expose on an interior and would make one flash, and then another, and then another, and another, and then they would go to work and develop it and the plate would come up and fog all over, having the appearance of being undertimed, and they would wonder what the matter was. The reason of this is, the first light affects the plate, and every succeeding shot after that has to go through the silver which has been reduced by the light, and the successive flashes after the first do not hurt the plate at all. It is the first light you get on the plate that does the work; and this is one of the secrets of success in instantaneous work with detective cameras, by using lenses of large aperture and getting plenty of light to do the work the first time. If you stop down, you will get very little light on the plate and you will get extreme flatness, which is not wanted.

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In developing instantaneous exposures with hydroquinone a weak developer is preferable. A very good plan is to start the plate in weak pyro until you get the details and then finish the plate by a separate solution development in hydroquinone developer, which will give you good density, softness and delicacy, where, with hydroquinone alone on an instantaneous exposed plate, you are apt to get extreme hardness or rockiness.

The *President*—The question of different printing processes is of course always uppermost in the amateur's mind; and while to a good many of the members and gentlemen present here the platinotype process is probably familiar, still there may be some of those who have recently taken up photography, or recent members of the society, who don't know very much about the process. We have arranged for a partial demonstration of the process here to-night—not that of coating the paper or of exposure, but showing the development and the ease with which it can be done.

The sensitized paper, where it is bought ready prepared, or prepared by one's self, is exposed in a printing frame in the usual way. Mr. Duffield has, I believe, some of the prints after exposure, just as they are taken out of the frame, and you will see that the image is hardly visible. The paper has a somewhat yellowish tone. It is analogous to that which is familiar in the case of the blue print paper, and in that connection it is well to note that the sometimes despised blue print is a relative of the platinotype. In the current number of the *British Journal of Photography Almanac* for 1889, a copy of which is on the table, Mr. Traill Taylor has quite an extensive article on the different printing processes of which iron plays an important part, and he treats of the blue print process and the platinotype process. The paper is of a lemon-yellow color before exposure, and it prints as you can see by the samples. Of course they must be protected from unnecessary light, and as much as may be from moisture until development. The development is properly conducted in a feeble white light, and it can be proceeded with immediately after the print has been exposed, or the development can be delayed, which is sometimes a desideratum. The developer is a solution of neutral oxalate of potash in water, but heated within certain limits of temperature, about blood heat. The water ought to be about as hot as you can easily bear the finger in it. The development is made by laying an exposed print on the surface of the hot water, carefully avoiding air bubbles, and allowing it to remain there until development has proceeded far enough, which you will find out by looking at it, and then rinsing in water, and fixing it with hydrochloric acid, which clears and washes the print. Now you can see those things very much easier than you can comprehend it by hearing any one speak about it.

Mr. ATKINSON—Has not the cold process of printing out superseded that altogether?

The *President*—It is a good deal of a question whether it has or not. It is the latest wrinkle, and it is certainly very much more convenient; but all the samples I have seen have been, in some respects, a little less desirable.

Mr. ATKINSON—There is one point that I want to call attention to, and that is, in using cold water I don't think you get a desirable result; but if the paper is steamed over some boiling water, thereby softening the film, you get a much better result.

The *President*—I have heard that suggested, but at the same time my personal knowledge of it is, that with all the samples I have seen of the printing-out process, there has been something wanting as compared with the usual process with a hot oxalate solution.

Dr. FULLER—My experience has been that it was a bad plan to use a hot solution. It is better to use a solution of a lower temperature, and you can return the print to the solution two or three times until you have the required degree of development.

The *President*—At the suggestion of Mr. Williams, I made application on behalf of the society for space at the Paris Universal Exhibition of 1889. I have to-night received a notification of the allotment of space for the society, and it is 9x13 feet—not a very large space—but we see it will require some little care and selection on our part to fill it worthily. Mr. Williams has kindly consented to act as chairman of the committee for taking charge of the exhibits of the society. He hopes to be present at the exhibition himself during a large portion of it to see that the society is well taken care of. The others of the committee have not yet been named, but they will be announced, and of course the members will be notified of what is necessarily expected of them in connection with it.

The programme that has been sent out contains a notice of a special lantern slide exhibition on January 18th. The regular lantern slide exhibition will be on January 25th, and a special meeting on Thursday, January 31st, in

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commemoration of the birth of photography. That, I think, will be a very interesting occasion, and I hope we will all take pains to be present. In connection with the special meeting of the 18th, I would say that there will be shown about forty slides—views of open air statuary in and around New York—being a collection of the public monuments and statues ornamenting our city, and a description of these slides will be given by Mr. J. Wells Champney. Mr. Charles Simpson has been about a year and a half in completing this collection, and feels sure it is the only one of its kind; and we would like all the members and their friends who take an interest in this subject to attend. There will be also shown, in connection with these slides of Mr. Simpson's, a number of beautiful slides made by Mr. James E. Brush, who was a former member of this society, until his business compelled him to relinquish it; and those of you who remember him will know that his work was above the average, and, without meaning any disrespect to those who are so active among us now, I think his work has never been excelled by the members of the society; and so I am sure all who attend this special meeting on the 18th will be well repaid.

Miss Catherine Weed Barnes, of Albany, at the recent lantern slide exhibition, authorized me to announce that if any of the members are passing through Albany and will take the trouble to call, she will be very glad to show them her studio and work.

The following resolution has been presented:

"*Whereas*, This society having heard of the death of Edward Anthony, of New York, on December 14, 1888, formerly the head of the firm of E. & H. T. Anthony & Co., and well known for many years in the photographic fraternity as a man active in promoting the art and science of photography, of high moral character, strict business integrity, and most agreeable personality, it is hereby

"*Resolved*, That in his death the community loses a noble example of uprightness of character and honesty of purpose which will always be revered in the memory of those who knew him as an example well worthy of following.

"*Resolved*, That in his endeavors to aid and improve apparatus used by amateurs, he not only won their respect but materially advanced the cause of photography.

"*Resolved*, That this society hereby expresses to his bereaved family its deepest sympathy in this hour of sad bereavement.

"*Resolved*, That a copy of these minutes be entered on the records of the society and an attested copy be sent to his family."

On motion of Mr. Simpson the resolution was unanimously adopted.

The *President*—We have a similar resolution for a former member of the society, Mr. C. Smith Lee, in the following form:

"*Whereas*, The Society of Amateur Photographers of New York heard of the probable death of its much respected member, Mr. C. Smith Lee, who is supposed to have perished at sea with all on board on the yacht Cythera, which sailed from this port on March 12, 1888, and desiring to express the feelings of regret and sincere respect of its members to his memory, offers the following resolutions:

"*Resolved*, That in the reported death of Mr. C. Smith Lee this society has lost a valuable member; one who, by his many excellent traits of character, won the friendship of all who knew him.

"*Resolved*, That a copy of these minutes be entered on the records of the society and an attested copy be sent to his family."

The resolution was unanimously adopted.

The detective cameras will now be examined in the library.

The meeting then adjourned and members gathered around the large library table to witness the development of the platinotype prints, which was very successfully done by Mr. A. C. Wilmerding.

Then numerous styles of cameras were shown, in number between thirteen and fifteen.

SPECIAL MEETING IN COMMEMORATION OF THE FIFTIETH ANNIVERSARY OF THE BIRTH OF PHOTOGRAPHY, JANUARY 31, 1889.

The meeting was called to order at 8.15 P. M., *President* CANFIELD in the chair.

The *President*—The subject of our meeting this evening is announced to be "In Commemoration of the Birth of Photography." It was fifty years ago, in the year 1839, that the announcement of the discoveries of Daguerre and Fox-Talbot was made publicly.

We have been very kindly promised the assistance of several gentlemen this evening, especially Dr. Laudy, who has, at great inconvenience to himself, brought down from the excellent collection of the School of Mines, of Columbia College, the apparatus connected with daguerreotypy and a number of very interesting and beautiful examples which you will see hung on the walls, and which, I suppose, he will explain to you; and we will listen to him, I am sure, with a great deal of pleasure on the subject of the "Daguerreotype." (See page 142.)

At the conclusion of Dr. Laudy's remarks, Mr. J. B. Gardner said: I suppose I worked

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those boxes which have just been shown you by Professor Laudy, for nearly thirty years; I sold them to a man by the name of Beals, who had come from California to induce Mr. Pearsall, of Brooklyn, to renew this kind of work. He (Mr. Pearsall) afterward sold them to the School of Mines. I have made hundreds of pictures with those boxes, and if I had an idea that this apparatus would be shown here to-night, I would have brought some of the daguerreotypes that were made by means of it.

Professor LAUDY—I am extremely glad to hear Mr. Gardner make these remarks. I have personally tried to prevail on him at times to give me a statement of these facts, and I will now try to induce him, if I can, to write out the history of this apparatus, so that it can go on record in the collection in the School of Mines.

The *President*—I will now ask Mr. Abraham Bogardus to address the meeting. I believe Mr. Bogardus will speak of some of the "Trials and Tribulations of the Daguerreotyper." I do not know whether he will go beyond the daguerreotyper to the photographer or not; but, of course, we will be very glad to listen to him.

Mr. BOGARDUS—*Ladies and Gentlemen:* I am afraid that giving me a text to speak from will remind you very forcibly of the ordinary after-dinner speaker. The President usually gives the text, and that is about the last you hear of it (laughter), unless, possibly, you may by chance hear of it, but not usually.

Here is something that I would like to send around to the members present before I proceed any farther. It is an original daguerreotype of Daguerre, taken from life, and I think it is a better one than the School of Mines has. (Laughter.)

The *President*—Who made that?

Mr. BOGARDUS—It was made by Charlie Meade, of New York City, and Daguerre sat for it, as a great favor, for the purpose of sending it to America.

The *President*—What time?

Mr. BOGARDUS—I cannot tell you the year. It was somewhere about 1846.

Mr. Bogardus then read his paper. (See page 139.)

The *President*—We have witnessed the enjoyment of Mr. Bogardus' remarks, and I am sure we are all very much obliged to him for coming here and giving us the interesting talk which we have just listened to.

Mr. Newton, our honored member, is with us to-night and will say a few words, I believe, on the general subject of, possibly, his experience as an early amateur, especially in the dry plate process.

We are very glad to hear from Mr. Newton, and we know from his ample fund of experience that he could entertain us a whole evening without any difficulty. (See page 146.)

Mr. Beckers, who, I am told, is the oldest practical photographer in the city—at least, he enjoys that reputation—has very kindly come to us to-night, and has prepared a valuable paper, which, I understand, will occupy about ten minutes in reading.

We will now be very glad to hear Mr. Beckers.

Mr. Beckers then read his paper. (See page 144.)

The *President*—We have another veteran with us to-night, Mr. J. B. Gardner, the Secretary of the American Institute Photographic section, and we would be very glad to hear from him.

Mr. GARDNER—*Ladies and gentlemen:* I rise simply to say that this subject will be continued on the third Wednesday evening in February, in the trustees' room of the American Institute, and the hour is now so late that I propose that we call it an adjourned meeting until that time. I think we have had enough for to night. I think we are full (laughter), and I propose that those who feel any interest in the subject will remember the third Wednesday evening in February, at the trustees' room at the American Institute.

Mr. BEACH—I move a vote of thanks to the gentlemen who have assisted in entertaining us, and who have imparted to us such interesting facts in regard to the past of photography.

Motion seconded and carried.

Professor LAUDY—Mr. President, just one word. I was in hopes some reference would be made to-night to Talbot's discovery by the other speakers. I have a frame of his work here on the wall. I would like to call attention to some of the original Talbot-types, which were taken from nature, and I omitted to state anything about them, for the reason that I thought some of the speakers would refer to those on the wall as the original work of Talbot.

Mr. DUFFIELD—I move a vote of thanks to the School of Mines for allowing us the use of their apparatus and daguerreotypes this evening.

Motion carried.

Mr. DUFFIELD—I also move that a letter be sent to the Photographic Society of France, to the Photographic Society of Great Britain, and

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the Photographic Society of Germany, telling about this meeting, and showing our appreciation of the efforts of the sons of these countries in the field of photography. I move that the President have that matter in charge.

Motion seconded by Mr. Stebbins and carried.

The *President*—I have only one further thing to suggest: There are no daguerreotypes hanging on our walls. I would give an invitation to those members who may have examples of daguerreotypes at home, to contribute one or two of them, so that we can have some frames like these which belong to the School of Mines, and start a little museum of our own.

Mr. DUFFIELD—And if any gentleman has any very valuable ones, we assure him that we will take special care of them. (Laughter.)

Mr. NEWTON—I would like to add, not as an amendment to the present resolution, but I would like to add to that remark that the President be authorized to make some for the Society. (Laughter.)

The *President*—If Mr. Newton will agree to assist me, I will agree to do it.

Motion to adjourn carried.

REGULAR MEETING, FEBRUARY 12, 1889.

The meeting was called to order at 8.15 P.M. *President* CANFIELD in the Chair.

On motion the reading of the minutes of the previous meeting was dispensed with.

The *President*—The first item on our programme to-night is, "Photo-gravure Processes," accompanied by a practical demonstration by Mr. Ernest Edwards, of the Photo-gravure Company, whom I have the pleasure of introducing to you.

Mr. EDWARDS—Ladies and gentlemen: It seems necessary to preface the little demonstration I am to give you with a few remarks on photo-mechanical printing, because I am afraid it would not be perhaps intelligible to you unless I did so, and a short written statement may serve as an introduction to the subsequent demonstration. (See next BULLETIN.)

[During the following discussion the process of printing from photo-gelatine and photo-gravure plates was proceeded with. Mr. Edwards had had set up a regular machine, so that those present were able to witness the actual modus operandi.]

The *President*—I have seen advertised in the French photographic journals an apparatus for producing work of this kind. They call it "The Black Auto-copyist," and it is sold very cheaply—I think the price is $25 or $30. Is it possible for amateurs to produce anything satisfactory with that?

Mr. EDWARDS—Do you know what the "Black Auto-copyist" is?

The *President*—No, sir, but I have an idea of it.

Mr. EDWARDS—It is a piece of parchment paper on which is spread a layer of gelatine with a large amount of glycerine, on which a printing image is transferred. In the ordinary use of it, it is like the hektograph; is an improvement on the hektograph. You make a writing or drawing in ink of which the basis is tannin or tannic acid; and you transfer your writing to the surface of the gelatine. When, if you take an ink roller, and pass the roller over the surface of the gelatine, the ink will adhere where your writing has been and this copy is then transferred to paper. That is the "auto-copyist." I believe it is now proposed to add bichromate to the gelatine and then produce the image by light acting through a negative. The moment you do this it becomes photo-gelatine printing, and photo-gelatine printing is, apparently, a perfectly simple and easy thing.

Any gentleman can try it with an expense of $10 to $15, to start with. (Laughter.) But by the time he quits I am sure I don't know what the expense will be. (Laughter.)

Mr. E. F. HILL—How is that etched (referring to the photo-gravure plate then being printed from)?

Mr. EDWARDS—This plate is etched in this way: a layer of gelatine is put on the plate—a layer of gelatine which has been made sensitive to light. A positive made from a negative is printed on the layer of gelatine, and the copper plate with its adhering gelatine is then placed in the etching bath and afterwards plated with steel, which gives it a hard steel face.

A *Member*—If the impression on the gelatine is there, some of the gelatine will be removed before putting the acid on the plate.

Mr. EDWARDS—Yes; but as a matter of principle it is not necessary that it should be removed.

A *Member*—The acid will act through the gelatine.

Mr. EDWARDS—Yes.

A *Member*—Do you remove any of the gelatine?

Mr. EDWARDS—Yes; although some use the whole of the layer of gelatine, and do not dissolve any of it away.

A *Member*—Is there any difference between the first and the last impression?

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Mr. EDWARDS—In photo-gravure the copper plate will, of course, wear by degrees. You have to watch it. Sometimes after two or three thousand impressions there will be a considerable wear. But if the plate is strong it will last with steel facing for eight or ten thousand impressions.

In printing from a photo-gelatine surface it is a little different. The work does not seem to wear so much by printing, but some accident is pretty nearly sure to happen to the plate. It will be scratched or abraded, or some accident of that kind will happen to it. The average printer will print from such a photo-gravure plate (referring to the plate being printed, which was about 8 x 6) in a day about three hundred impressions, and they will all be uniform or reasonably uniform.

I think photo gravure is easier than photo-gelatine printing. The photo-gelatine printer has a hard time of it. His plate is always doing just the wrong thing. It is either too wet or too dry, or the day is too hot or too cold. He has all the freaks of the weather and of gelatine to contend against; but in photo-gravure the plate when once finished is the same all the time, day and night.

The *President*—Mr. Edwards suggests that if anybody desires to examine the operation of the machine more closely they may have an opportunity of doing so.

(At this point Mr. Simpson moved a vote of thanks to Mr. Edwards for his interesting paper, and the trouble which he has taken in bringing his apparatus to the rooms and demonstrating the photo-gravure process; which was unanimously passed.)

The *President*—The further working of the process will have to be dispensed with, I am sorry to say, as we have several other things to show to-night.

I will say that I have on the table here a piece of apparatus which is of interest to most of the members. It will certainly be of interest to those who are interested in lantern slides.

Some two months ago I asked Mr. Colt of this city, who is engaged in the manufacture of articles for lanterns, etc., if he would not bring to the February meeting of the society this form of lantern, which he showed me then in an imperfect condition—that is to say, not fully completed according to his liking. He very kindly agreed to do so, and has brought it up here to-night, although he tells me it has not yet been brought to the point of perfection that he desires to have it.

It is an oil lantern for projection, something on the Argand principle, with a parabolic reflector light, which is movable up and down on this standard. The objective can be moved backward and forward.

Another new piece of apparatus that we have to-night to be shown is the new "Lilliput Camera," which is possibly familiar to some of you, and if the gentleman who has it in charge will show it to us now we will be glad to see it. Mr. Armstrong, I believe, is the gentleman who has it in charge.

Mr. Armstrong then exhibited the camera, which was encased in a neat leather box resembling in appearance an ordinary field-glass case. An aperture was provided in the front of the case for the lens, covered by a pivoted leather flap. On the under side of the box are two levers, one for setting off the shutter for time exposure and the other for instantaneous. Six miniature plate-holders, having different colored ends on the slides so that they may readily be distinguished, are contained in space in the box behind the camera. In operating it, after exposure, the cover is opened, the slide replaced and the holder removed to the rear of the box, and a fresh holder is inserted. The outside measurement of the camera is 4 x 4 x 6 inches, and it holds six double holders with twelve plates, 2½ inches square.

Specimen prints and negatives were shown, which were quite clear and sharp. Purchasers of complete outfits secure 108 plates.

The *President*—We want to try and keep abreast of the improvements made in photographic apparatus, and Mr. Duffield informs me he has here a couple of cameras of English manufacture, which he will show. One is a Ross camera and the other is a McKellan. This one has been rather ingeniously advertised. I think the owner calls it the McKellan "treble patent" camera. That simply means there are three patents on it, as I understand. (Laughter.) It is a 6½ x 8½, with patent focusing screen, roll holder, etc.

Mr. DUFFIELD—This camera was loaned to us by one of the lady members of the society. The novelty of this apparatus consists in the focusing screen, which does away entirely with the focusing cloth.

(Mr. Duffield then, by means of a screw, extended the camera so that the members could see its operation.)

Mr. SIMPSON—What is the name of the maker?

Mr. DUFFIELD—Mr. McKellan. It is made for a roll holder. This is the focusing device (indicating). It is made, as you see, of a series of india rubber ribbons, stretched hori-

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zontally across the face of the focusing glass. These are separated by putting one half over the forehead and the other half over the chin and lower portion of the face, thus keeping the light out while focusing.

The *President*—It has been suggested that it is a great improvement over the old-fashioned way of taking your coat off and throwing it over the box. (Laughter.)

Mr. DUFFIELD—Now this is the Ross camera (adjusting the camera for inspection). You see it is on the same plan. It has a shutter the same as the other. But one new addition to the camera are these little pendulums, which show whether the camera is perfectly straight. As you move it, they will fall backward or forward just as you please. Then there is no tripod head; a circular aperture is cut out of the base board of the camera, on the inner edge of which are projecting pins, on which the legs of the tripod are affixed. This construction adds very much to the lightness of the camera without diminishing its strength. The camera has been brought here for your inspection by Mr. Frazer.

The *President*—These cameras can of course be examined after the other exercises of the evening. Our exercises thus far have been so interesting, and we still have so many things to show, possibly I had better give the notices for the ensuing few days of the month. As announced on the programme, which has been distributed, on Wednesday evening, the 20th, a special Lantern Slide Exhibition of the work of Mr. Richard H. Lawrence will be given, together with a paper, the title being "Through France and Norway with a Detective Camera."

The mere announcement of this entertainment will, I am sure, draw a crowded house; and, in connection with the Exhibition, I want to announce that the only way of securing the comfort of those who attend is to strictly carry out the plan of admission by tickets. It is intended that only those having tickets will be admitted on this occasion. We have sometimes been a little lax in this respect, but we have been compelled to resort to this measure as a means of self protection.

Mr. SIMPSON—I would suggest that you announce that members wanting additional tickets must apply for them.

The *Presiaent.*—Certainly, that is always understood. Those wanting more tickets should apply to the Secretary of the society.

Mr. CHAMPNEY—Mr. President, I never understood the tickets that have been issued to entertainments of this kind by the society. When two tickets are issued is it the rule that one shall represent my entrance and the othe the guest's?

The *President*—That is the idea. Each ticket is for one admission.

Mr. SIMPSON—A member can bring a friend if he holds another ticket.

Mr. CHAMPNEY—That is, no member can be admitted without a ticket.

The *President*—That is the idea. Since the last meeting there have been elected the following gentlemen: A. W. Weiser, E. F. Hill, H. F. Noyes, P. W. Dickerson, Jr., Guy Phillips, E. W. Thayer, F. Vilmar, Active; A. C. Wilmerding, Miss S. M. Cory, Subscribing; B. Irwin, Corresponding Member; and E. B. Gallagher has been changed from a Corresponding to an Active Member.

There is a matter of business to be acted upon. A successor to the present representative of the Lantern Slide Interchange is to be selected. The members of the society have received probably a notice of the prospectus of the third annual exhibition to be held in Philadelphia in April, and a gentleman who represents this society—the chairman of the committee, Mr. Duffield—has asked that members communicate with him whether they have pictures or not, and how many they will probably send.

(*To be continued.*)

What Our Friends Would Like to Know.

N. B.—We cannot undertake to answer questions of a technical character except through the columns of the BULLETIN. *Correspondents will please remember this. No attention will be paid to anonymous communications.*

Q.—G. F. M. sends a couple of prints and writes: Will you please let me know through the BULLETIN the cause of this bronze appearance on the picture of the man, especially on his hat? The batch that it was toned in toned very hard and this one turned yellow while in the wash water. The picture of little girl was made last fall. There are about a dozen, and they are all turning yellow in the same place.

A.—The bronze stains you speak of are from hyposulphite, and, judging from the look of them, probably by contact of the paper with poorly washed negatives that are slightly damp when the paper is put into the printing frame.

Q.—M. A. F. writes: I notice in your late Annual, on page 53, that "a plate carefully backed" with any non-actinic material in optical contact will stand double the normal exposure, etc. Will you kindly name the best or any good non-actinic material that is used

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for the purpose of "backing" as described, and please explain the meaning of optical contact?

A.—Use the black varnish sold for painting iron, painting the back of the plate with it. After exposure, the varnish can be removed with a cloth wet with turpentine. "Optical contact" means in absolute contact after the manner of varnishing as given above.

Q.—M. T. incloses printed formula and writes: Referring to inclosed (I print all formulas I am using and stick them up on dark room wall for ready reference), see last line, "hypo soda, 1 ounce." Does this mean 1 ounce of undissolved soda to 8 ounces water, or 1 ounce liquid saturated solution of hypo? If the former, could you give proportions of water and saturated solution hypo to attain proper results? It is so much handier to work with the saturated solution. I will consult the "What our Friends Would Like to Know" for your reply.

A.—The figure given in formula for fixing solution means 1 ounce by weight. If you wish to use a saturated solution you must take 2 ounces by weight or 1½ fluid ounces.

Q.—S. T. B. writes: I have experienced recently considerable difficulty in intensifying Stanley plates. These are my favorite plates, and I use them regularly. The difficulty is in getting the plate to blacken under the influence of ammonia after mercury. I have been very careful to wash well after fixing, and have tried intensifying both wet and after drying the plate. Still the same trouble—a yellowish green fog settles over the plate when placed in the ammonia. Long soaking therein does not alter the appearance of the negative. A soak in the hypo bath brings the plate back to its original condition. Sulphite of soda after mercury works better and does not stain or fog the plate, but I do not like the brownish tone of the negative as well as the black of the ammonia. If you can help me out by any suggestion in the BULLETIN I will be much obliged, as I have several thin, clear and (lacking good density) perfect negatives of children which I want to utilize in the printing frame.

A.—Rapid plates like those made by Stanley, Cramer and others are not easy to intensify, as they are usually thin from over-exposure. To intensify we like the method of using a half saturated solution of sodium sulphite after bleaching with mercury. In our hands, after very thoroughly washing out of the hyposulphite, we bleach with a half saturated solution of mercuric chloride, then wash well and blacken in sulphite solution of above strength.

Q.—H. W., Jr., writes: Will you please inform me in the next BULLETIN how to mount a photographic print on a one-ply card-board or on such paper as Mr. Edward Anthony's picture in the BULLETIN of December 22, 1888? I always have trouble in mounting on account of curling, and this makes the print look badly.

A.—It is best to let the prints become nearly dry but still damp. Then use a stiff paste and dry under pressure with blotting paper between each print. By burnishing before the prints are absolutely dry the cards can be straightened out.

Q.—C. E. V. writes: Please tell me whether, when the "focus" of a doublet is mentioned without further qualification, the "back focus," or the "equivalent focus," is intended? I wish to apply a formula in which the above ambiguous term is a factor.

A.—In doublet lenses, or indeed with any lens, the focus mentioned is always understood "back focus," unless otherwise specified.

Q.—Y. B. S. writes: Herewith find a print. What is the cause of the spots? We have good prints from same negative cut from same sheet of paper printed at same time, and under same conditions. Bath 50 grains strong; 1½ ounces of alcohol to gallon; a trace of alum. Paper N. P. A. The sheet that gives the sample we send gives also good prints. The spots show while the paper is on the negative, and remain all through subsequent operations.

A.—The spots on the paper you send are probably due to moisture settling on a cold negative. This may happen by bringing a negative out of a cold room into a warm one, or taking a negative from out-of-doors into a warm room.

Q.—J. R. C. writes: I notice in January 26 number of BULLETIN, page 49, you notice exhibition by F. C. Beach of three 4 x 5 prints on Pizzighelli's new printing-out platinotype paper. Can you inform me if this style of paper is in market, and of whom it can be obtained, ready prepared for use? *Harper's Monthly*, a short time ago, mentioned this paper, but have not been able to locate it; don't know if it is to be had in this country, or, indeed, if kept in prepared state at all. Captain Pizzighelli has a very interesting article in your "Annual" on preparation and use of platinotype paper, but my time and facilities are too limited to prepare it myself, even if I clearly understood the process.

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A.—Pizzighelli's platinotype paper is advertised by our publishers and can probably be obtained from them ready prepared for use.

Q.—R. H. M. writes: Please give in the BULLETIN the best hydroquinone formula for portraits and for landscape, also for instantaneous work. Also please tell me how to dissolve bleached shellac in alcohol. I have been trying to dissolve some for two months: 2 ounces in 8 ounces of alcohol; but by mistake 1 teaspoonful of oil of bergamot was added; has this caused the trouble?

A.—Several excellent formulas have been given in Dr. Vogel's recent articles in the BULLETIN. See "Letter from Germany," in some of the recent numbers. Also in the letter of our English correspondent under the head of "English Notes," in recent numbers. All these formulas are good, but something depends upon the manner of working; some are good for one and some for another. We cannot understand your trouble with the shellac; we have often dissolved it readily, and don't think the oil makes any important difference; perhaps the alcohol is too weak.

Q.—G. A. P. writes: Respecting the use of hydroquinone as a developer, I would say that I have found difficulty in obtaining good prints from negatives developed with Dr. Vogel's two-solution developer, and from several of the one-solution developers. Can you inform me of any way to get negatives of good printing qualities, instead of the translucent gray tones which appear in all my negatives developed with hydroquinone? A strong, sharply defined negative, with good contrast between sky, land and water, will frequently print up with no contrast whatever, and with the appearance of a very much over-timed plate. Negatives of the same intensity developed with pyro, would make a splendid print. I forward herewith a print such as I speak of for your inspection. A number of my friends are having the same experience, and an explanation or remedy published in the columns of your BULLETIN would greatly oblige.

A.—Your trouble is probably due to underdevelopment. You have to carry the density much farther with hydroquinone than you do with pyrogallol. We also prefer to use a little sodium hydrate (caustic soda), with the hydroquinone, say two grains to the ounce in addition to the usual amount of sodium carbonate and sulphite.

Views Caught with the Drop Shutter.

MR. C. C. HOWLAND, of Cincinnati, was recently in New York on a visit, and called at our office, and we renewed former pleasant memories.

THE photographic business of the Scovill Manufacturing Company has been transferred to a new firm, the Scovill & Adams Company, with Mr. W. Irving Adams as *President*, and Mr. H. Littlejohn as *Secretary*.

DR. EDWARD L. WILSON has purchased the American copyright of Mr. Hepworth's "The Book of the Lantern," and will soon bring out the work for American readers. Mr. Hepworth's name is a sufficient guarantee for the excellence of the work.

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February 22, 1889.

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Indeed I think it ought not to be published in pamphlet form at all, for if a man don't want it enough to pay a dollar for it, he ought not to have it.

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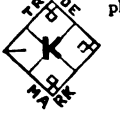
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Size.	Apert. of Shutter.	Price.	Size.	Apert. of Shutter.	Price.
No. 1.	1 inch - - - -	$4 50	No. 3.	1½ inch - - - -	$5 50
" 2.	1¼ " - - - -	4 50	" 4.	1¾ " - - - -	5 50

These Shutters are furnished with Collars to fit all Standard Lenses.

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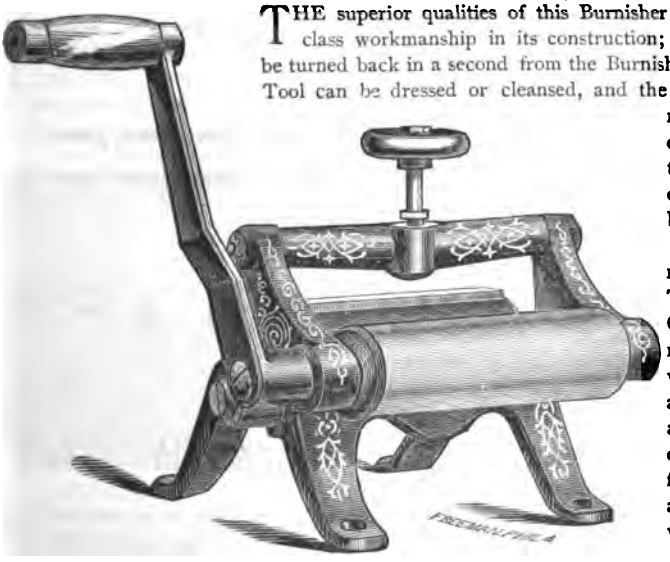
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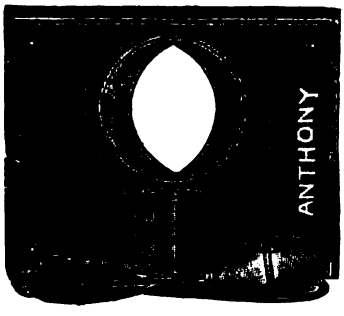
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The E. M. B. Pneumatic Gallery Shutter

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THIS Shutter is the most easily operated and readily adjusted of any gallery shutter in use. It is very simply constructed, does not jar the camera, or get out of order. It operates with perfect ease and freedom and may be made to remain open for focusing by simply squeezing the bulb to open the shutter and then kinking the rubber tube and fastening the kink with a clothes-pin or clip, which when removed allows the shutter to close immediately. It is made in one size only, the outside being rectangular and measuring seven inches by ten inches. The opening is 3¼ inches in diameter. It is furnished with a brass connecting tube which is designed to be fastened on the front of the camera, penetrating the front so that the inner rubber tube can be fastened to one end of this brass tube, and the outer rubber tube connected with the bulb to the other end, making a very neat and convenient method of connecting the tube with the shutter, which is of course to be placed on the inside of the front of the camera.



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One Year, - - - - - -	$2 50
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(PATENT APPLIED FOR.)



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The apparatus is held in and operated by the same hand, and requires no other support, and the light may be projected in any direction, and at any angle of elevation.

Price Complete, - - - - - $3 00

Pure Magnesium, per ounce, post-paid, - - 50

CAUTION.—The so-called "flash-powders" should never be used in this or any other form of lamp, but only pure magnesium.

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NO TONING. NO FIXING.

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This article has been introduced as a convenient means of pressing prints on cards when mounting. It consists of a pair of rollers with a handle attached, a band of fine cotton cloth being wound around the rollers, the ends of the cloth being fastened one to each roller. Springs in the ends of each roller tend to turn them in opposite directions and thus the cloth is kept stretched across the intervening space, but may be rolled entirely from one roller on to the other or back without interfering with their action. Thus a fresh clean portion of the cloth may be obtained whenever the portion in use becomes soiled by paste exuding from the sides of the print, or otherwise. When the band becomes entirely soiled it can be removed, washed and replaced.

For use, place the pasted print on the mount and draw the roller over it as shown in the cut. The pressure of the roller removing the air from under the print presses it securely to the mount; the cloth absorbs the moisture from the surface of the print without displacing it and leaves it perfectly smooth. For sale by all dealers. Price each, $2.00.

Messrs. E. & H. T. ANTHONY & Co. NEW YORK, December 10, 1887.

GENTLEMEN,—We have tried your CLIMAX PRINT MOUNTER and find it works nicely. If you have a larger size we would like to try that also. Respectfully,

PACH BROS.

E. & H. T. ANTHONY & CO., Sole Agents.

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CLIMAX NEGATIVE FILMS,

TRANSPARENT AND FLEXIBLE.

For Portraits, Landscapes and Drop Shutter work. **Weight and Space reduced to a minimum.** Fourteen dozen Films weigh less than one dozen Glass Plates. They are developed in the same manner as Dry Plates. They reduce halation. They can be printed from either side of film.

ANTHONY'S CLIMAX NEGATIVE FILMS are made upon a substance of recent discovery, which is admirably adapted to the manufacture of a **Perfect Negative Film,** combining **Transparency, Strength** and **Toughness of Composition,** which renders them capable of being made so thin as almost to eliminate the question of weight and bulk in carrying. They are made with a **fine mat surface,** which **reduces halation,** and are **perfectly impervious to water.** Can be sent by mail without danger of breakage.

PRICES PER DOZEN.

3¼ x 4¼,	$0 65	5 x 7,	$1 65
4 x 5,	95	5½ x 7,	1 75
4¼ x 5½,	1 12	5 x 8,	1 80
4¼ x 6½,	1 30	6½ x 8½,	2 50
4¾ x 6½,	1 40	8 x 10,	3 60

Postage extra.

A TRIAL OF THESE FILMS WILL DEMONSTRATE THEIR PRACTICAL VALUE.

FOR SALE BY ALL DEALERS.

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OUR friends will recollect that about a year ago we invited all the photographers of the country to send us any criticisms or suggestions they might desire to make on this excellent Albumen Paper, that we might send them to the manufacturer, whose aim it was to make it *as perfect as it was possible to do.*

The Paper seems to have given such entire satisfaction to the most eminent photographers in the country that we believe but one suggestion was received, which was promptly forwarded to Dresden.

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We certainly believe that it is better than any other, in the *chemical preparation of the Albumen* and in the care with which the first quality is *selected.* It is very easy to make paper a few dollars less expensive to the ream by leaving in defective sheets, but it is *not really cheaper to the photographer.*

The next important point for the photographer to know is how he can be *sure* he gets the right paper in these days of counterfeiting brands. He will be sure in this respect by looking *through* the paper for the *water mark* N. P. A., *which cannot be counterfeited;* while a *brand,* as we said last year, can be put on "while you wait."

The *best is always the cheapest,* when you need it to *use;* though it may not be, if you merely wish it to *sell.*

Photographers will find that some parties will charge them the same price for *inferior papers* that they do for the N. P. A., and will try to persuade them that the other is "just as good." It *is* just as good—and better, too—for them to *sell,* because they make more profit on it; but the photographer who *uses* it will not find it so profitable as he who *sells.*

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NO ONE WHO KNOWS THEIR QUALITY AND CAN AFFORD TO BUY ONE will be satisfied with anything else.

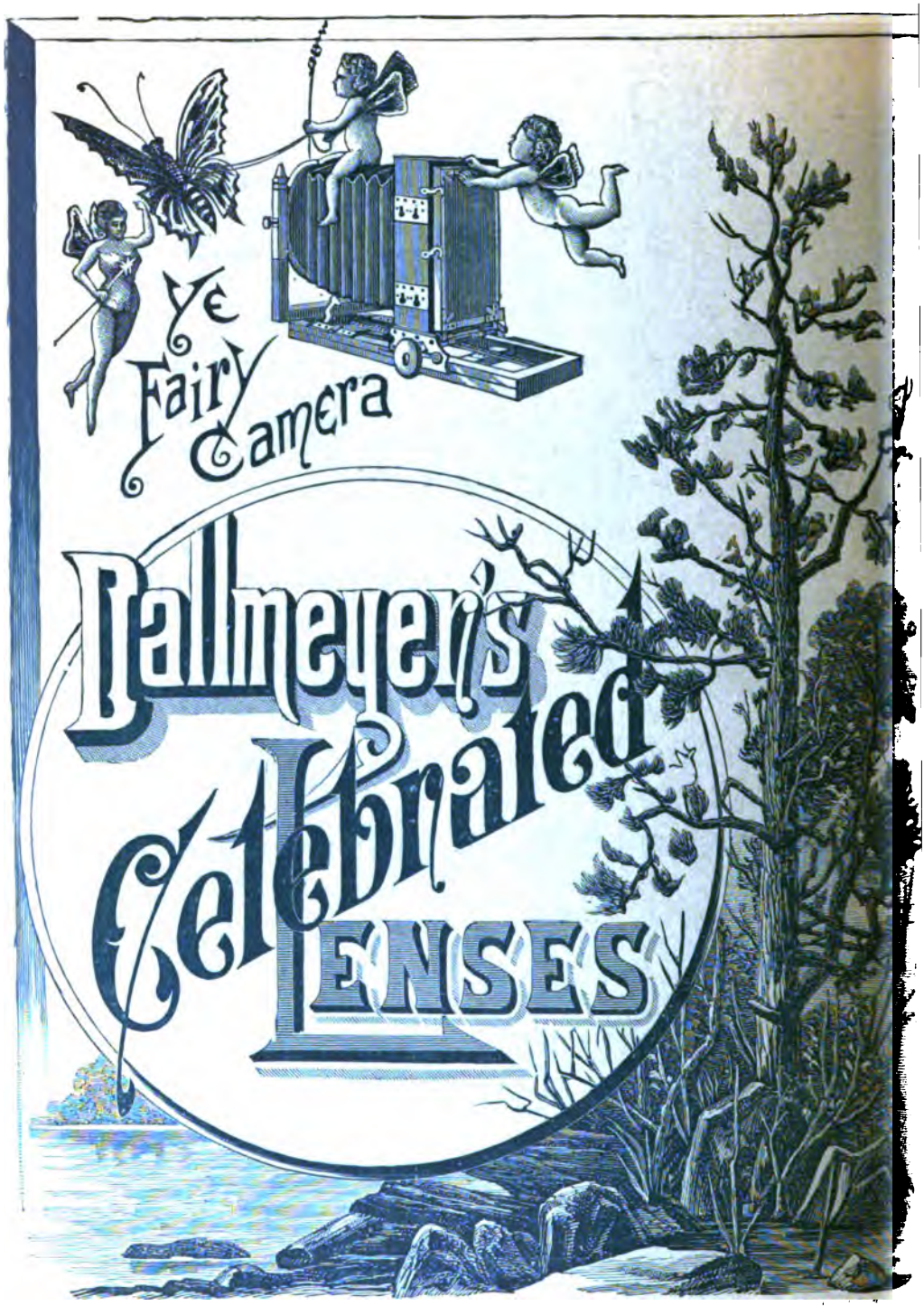
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For the Amateur and the Professional

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Vol. 20. March 23, 1889. No. 6.

ANTHONY'S Photographic BULLETIN





Edited by
PROF. CHAS. F. CHANDLER, Ph.D. LL.D.
Prof. of Applied Chemistry in the School of Mines,
COLUMBIA COLLEGE, NEW YORK CITY.

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4 x 5,	95	5½ x 7,	1 75
4¼ x 5½,	1 12	5 x 8,	1 80
4¼ x 6½,	1 30	6½ x 8½,	2 50
4¾ x 6½,	1 40	8 x 10,	3 60

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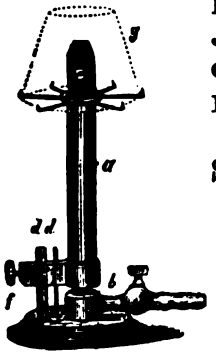
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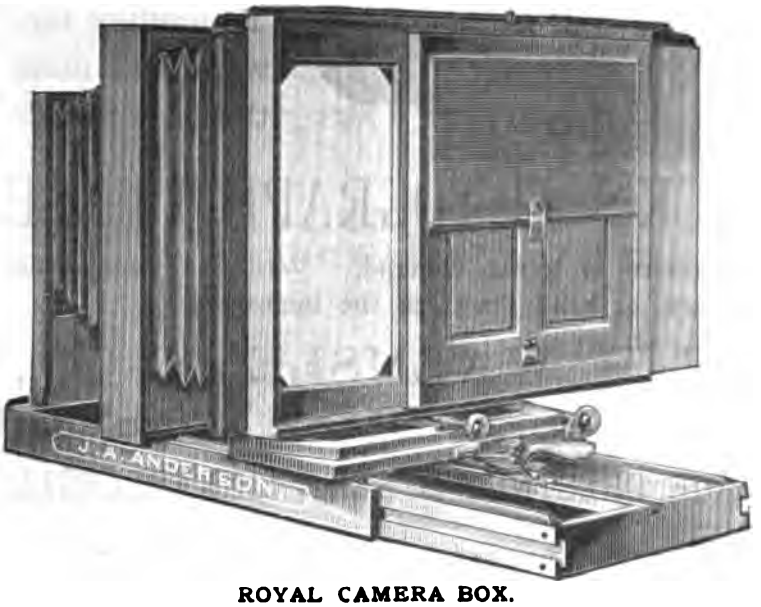
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Size.	Per dozen.	Size.	Per dozen.	Size.	Per dozen.
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4 x 5,	65	7 x 10,	2 10	17 x 20,	13 00
4¼ x 5½,	75	8 x 10,	2 40	18 x 22,	15 50
4¼ x 6½,	90	10 x 12,	3 80	20 x 24,	18 50
4¾ x 6½,	1 00	8½ x 14,	4 50	5⅛ Circle,	1 20
5 x 7,	1 10	11 x 14,	5 00	6⅜ "	1 60
5 x 8,	1 25	14 x 17,	9 00		

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A TIME SAVER IN PRINTING.

All Photographers will agree that the way of printing Vignettes has not been as satisfactory as might be desired, the necessity of using tissue paper, cotton and a number of other appliances making it tedious and troublesome, and only with great care satisfactory results have been obtained. SEED'S TRANSPARENT VIGNETTER dispenses with all these articles, and prints a Vignette *in direct sunlight, in the same way and in the same time* as an ordinary print is made, by putting it in the printing frame *first*, and on top of it the negative to be printed. A fine Vignette will be always the result. They are made in eight sizes—five for busts and three for three-quarter figures on 5 x 7 and 5 x 8 plates.

Size.	Per dozen.	Size.	Per dozen.
5 x 7,	$3 50	5 x 8,	$4 00

SEED VIGNETTE ADJUSTERS.

The Adjuster is to be screwed and glued to the ordinary printing frame which the photographer may have in use, the Vignetter is to be adjusted on the front and held by the brass springs, while the negative is put in the frame in the regular way. As the Vignetter prints in direct sunlight, without the use of tissue paper or any other appliances, in the same time and with the same ease as an ordinary print, its merits will be soon appreciated by those who try it. The backgrounds used should not be too dark.

Size.	Each.	Size.	Each.
5 x 7,	$0 25	5 x 8,	$0 25

SEED ADJUSTABLE PRINTING FRAMES, Patented.

This printing frame, having extra space to allow the adjusting of the negative over the center of the Vignetter, fastens it by means of two clamps in two opposite corners, holding it in its place, thereby enabling to print from all negatives on the Vignetter, and will be therefore a desirable companion to the Vignetter. Made for 5 x 7 and 5 x 8 sizes, to correspond with Vignetters.

Size.	Per dozen.	Size.	Per dozen.
5 x 7,	$10 00	5 x 8,	$10 00

SEED'S READY DEVELOPER.

Size of bottle.	Per bottle.	Size of bottle.	Per bottle.	Size of bottle.	Per bottle.
8-ounce,	$0 30	16-ounce,	$0 60	32-ounce,	$1 1

SEED'S FILMS.

See Notice in next Issue.

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CYRUS PROSCH'S NEW SHUTTERS.

PROSCH RAPID,
DUPLEX STEREOSCOPIC,
DUPLEX DETECTIVE,
DUPLEX TRIPLE IMPROVED.



DUPLEX WITH SILENT TIME.

The Prosch Rapid is capable of making exposures so rapid as to test to the utmost the skill of the most expert operators to develop. It is only for instantaneous work, such as taking horses at most rapid gait; athletes running, jumping; divers, etc., etc. Although operating between the lenses it is entirely different from the Duplex. Made in two sizes: No. 1, 1-inch opening, price, $18; No. 2, 1¼-inch, $22.

The Duplex Stereoscopic fills perfectly the want of a time and instantaneous shutter for Stereoscopic work. It consists of two Duplex Shutters on one frame, operated by one lever and one release, and consequently gives two identical exposures. Made in two sizes: No. 1, ¾-inch opening, $18; No. 2, ⅞-inch opening, $19.50. Lenses are arranged at 3¼ inches from centers; but this will be increased, if ordered, up to 3¾ inches for $1 additional. Rotary Stops, $2; Flange Collars, when required, 75 cents. Silent time attachment, $1.50; combined with slow instantaneous, $2.

The Duplex Detective is a reliable, compact and efficient Shutter for Detective Cameras, which can be used for both time and instantaneous work. Release for instantaneous is by a push trip (pneumatic if desired). Time exposure mechanism is same as silent self-setting time to regular Duplex Shutters, by which instantaneous exposures can also be made by pressure to pneumatic bulb. Price, including fitting to Camera and Rotary Stops, $15.

THE EVER POPULAR DUPLEX SHUTTER still retains its lead of all others, whether of home or foreign production. The Rotary Stop is considered by an army of users an indispensable adjunct to the shutter, likewise the silent, self-acting time, and slow instantaneous attachment, which operates shutter by direct pressure of air through pneumatic device.

DUPLEX ENLARGED REVISED LIST.

Numbers.....	00	0	0A	1	1A	2	2A	3	3A	4	5	6	7
Openings, inch...	½	⅞	1	1¼	1½	1¾	1⅞	1⅞	2	2¼	2½	3	3½
Price.....	$11.50	$12	$12.50	$13	$13.50	$14	14.50	$16	$19*	$20*	$22*	$24*	$27*

* Including silent time attachment.

Rotary Stops up to No. 1, $1.50; above that, $2. We do not make Rotary Stops for sizes larger than No. 2A, except by special agreement. Silent time attachment same prices as Rotary Stops.

When Flange Collars are required, as on Ross and other lenses similarly mounted, 50 cents extra. Shutters can be furnished for most standard lenses, fitted ready for use, but it is to customer's interest to forward his lens tube with order, otherwise perfect fit is not guaranteed. These shutters are owned and manufactured solely by the Prosch Manufacturing Co. None genuine without our stamp. Circulars containing full information forwarded on application.

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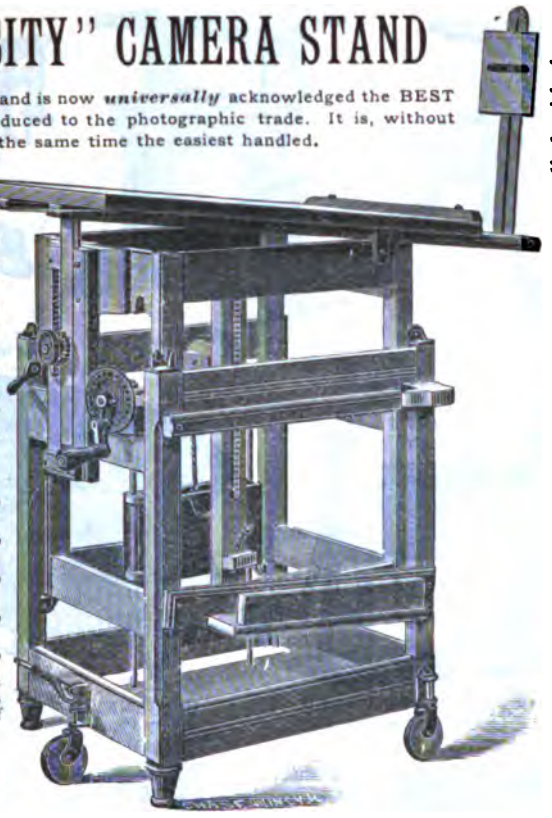
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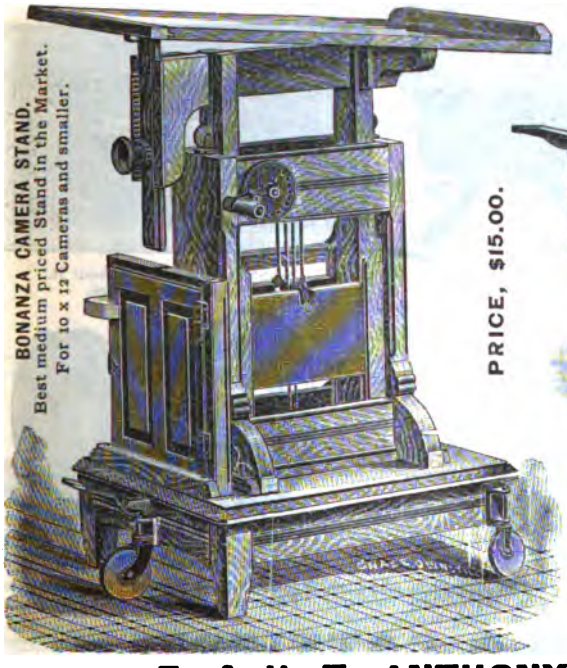
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No. 5, for 25 x 30 cameras, made to order only..... 35 00

Nos. 1 and 2 have one weight; Nos. 3, 4 and 5 have two weights and base to correspond to size of bed.

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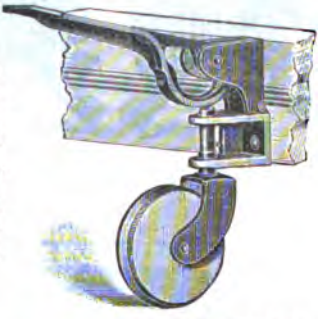
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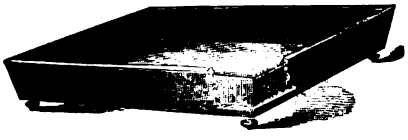


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This paper we now introduce to the trade under the name of Improved Reliable Bromide Paper, feeling assured it meets the requirement for an absolutely reliable article.

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The Improved Reliable Bromide Paper will be made both in quick (manilla color wrappers) for use with Cooper Enlarging Lantern, and in slow (blue wrappers) for day-light.

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3¼ x 4¼	$0 25	11 x 14	$3 00
4 x 5	40	12 x 15	3 35
4¼ x 5¼	50	14 x 17	4 50
4½ x 6½	55	16 x 20	6 00
4¾ x 6½	60	17 x 20	6 40
5 x 7	65	18 x 22	7 50
5 x 7½	70	20 x 24	9 00
5 x 8	75	22 x 27	11 25
6½ x 8½	1 00	24 x 30	13 50
8 x 10	1 50	25 x 30	14 00
10 x 12	2 25	24 x 36	16 00
10 x 14	2 65	30 x 40	22 50

IN ROLLS (10 Yards).

	PER YARD.		PER YARD.
10 inches wide	$0 56	20 inches wide	$1 12
11 "	62	22 "	1 24
12 "	68	24 "	1 35
14 "	79	25 "	1 40
16 "	90	30 "	1 68
18 "	1 00	31 "	1 74

EXTRA LARGE SIZES.

	PER YARD.		PER YARD.
33 inches wide	$1 85	37 inches wide	$2 10
35 "	1 96	41 "	2 30

These sizes are larger than anything that has ever before been attempted. ANTHONY'S PATENT RELIABLE PAPER is coated by the most perfect and the largest machinery ever designed for the purpose, and is warranted uniform in quality and capable of producing the most beautiful results photographically.

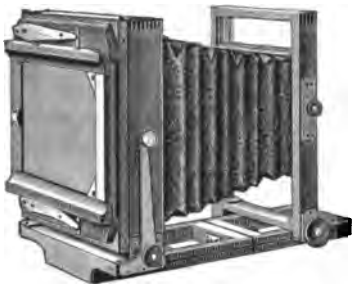
The grades are H. G., heavy grained; H. S., heavy smooth; L. S., light smooth, all at one price.

WE DO NOT MAKE ENLARGEMENTS FOR THE TRADE.

NOTICE.—Our Bromide Paper is made under U. S. Letters Patent to T. C. Roche, dead. February 8, 1881, No. 241,070. We have commenced a test suit in the United States Circuit Court for the Southern District of New York, against the Eastman Dry Plate and Film Cot, George Eastman, Treasurer, and the Scovill Mfg. Co., in which we claim that the paper manufactured by the Eastman Co. is an infringement of our patent, and the Scovill Mfg. Co. are sued as sellers of it. This suit we shall press as vigorously as possible. In the meantime we deem it our duty to ourselves and to the trade to caution all persons against infringing our patent, as dealers are liable equally with the manufacturers for both damages and profits.

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Combining the advantages of other makes with the latest improvements. The finest material and finish. Light and rigid. Superior Swing-Back Movement.

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5 x 7.	Single Swing	. . . . .	$28.
5 x 8.	" "	. . . . .	30.
6½ x 8½	" "	. . . . .	30.
8 x 10.	" "	. . . . .	34.

(Interchangeable Backs.)

Double Swing supplied when desired at $2 additional.

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DETECTIVE and Combination Camera.



Price, $15. Size of Pictures 4 x 5 inches.

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AS A MAGAZINE CAMERA.—The HAWK-EYE will be supplied with an attachment containing a coil of sensitized film sufficient for **100 exposures** without reloading, for **$10** extra, or **$25**; placing **Photography within the reach of all**, it being only necessary to wind a fresh portion of the film into position for each picture, *pressing a catch* making the exposure. The coil attachment may be mailed to the factory or photo goods dealer, to have the pictures developed and printed, or the finishing may be done by the amateur, as desired. The portion of the coil of film which has been exposed may be at any time removed, without taking apart the camera proper. Plate holders or coil attachment, glass plates or films may be used in the same camera. Send for illustrated pamphlet with sample photograph, or inquire of your dealer. **For sale by the leading dealers.**

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Coated with our "Special," "Eclipse" and "B" Landscape Emulsions.

3¼ x 4¼	$0 65	5 x 7	$1 65
4 x 5	95	5½ x 7	1 75
4¼ x 5½	1 12	5 x 8	1 80
4¼ x 6½	1 30	6½ x 8½	2 50
4¾ x 6½	1 40	8 x 10	3 60

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ANTHONY'S
Photographic Bulletin.

Prof. CHARLES F. CHANDLER, Ph.D., LL.D., *Editor.*
ARTHUR H. ELLIOTT, Ph.D., F.C.S., *Associate Editor.*

MARCH 23, 1889. Vol. XX.—No. 6.

MAKING UP FORMULAS WITHOUT WEIGHTS AND SCALES.

SEVERAL years ago an effort was made to introduce tablets or pellets of pyrogallol and alkali-mixtures of convenient size in order to overcome the necessity of weighing out the constituents of the developer. These tablets generally contained pyrogallol with or without the admixture of sulphite of sodium or other chemicals to form part of the developer, and the balance of the developer, carbonate of sodium or potassium or both, together with sodium sulphite, with or without bromide, was contained in a separate tablet. By taking one or more of each kind of tablets and dissolving in a measured quantity of water, the necessary developer was compounded.

But unfortunately these tablets were a failure and never became popular, the causes of this failure being due to several circumstances. In the first place, owing to the manner of compressing the pyrogallol into tablets, it soon became discolored and gave a very dark colored solution when dissolved in water. Again, this discoloration was not merely due to a darkening of the surface, but extended to the interior of the mass. This was the principal drawback to the use of pyrogallol in tablets.

In regard to the alkali tablets, another and equally serious drawback to their use was the want of latitude which their constitution prevented those who used them from exercising. They were compounded from certain set formulas known only to the manufacturers, and the photographer who used them could only take more or less of the whole mixture without any chance of variation to suit circumstances or any ideas that he might personally have in regard to the mixing up of his developer. In other words, they were like patent medicines, which every sensible person refrains from using because their constitution is not known.

The idea of the tablets in the abstract is a good one. To be able to do without weights and scales, and take a certain number of grains of material by simply counting out tablets of it, is very desirable, especially to amateurs. With this object in view, and after considerable experimenting, our publishers have succeeded in making up tablets of all the chemicals generally used in developers, in a pure state. Thus they are now making tablets of carbonate of sodium, carbonate of potassium, sulphite of sodium, bromide of potassium, hydroquinone and pyrogallol, in definite sizes. By the use of these tablets and a single measuring graduate, the photographer can make up his developer to suit his own ideas at

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a moment's notice, and without the necessity of using weights and scales, with their attendant loss of time and inconvenience.

This new enterprise on the part of our publishers is a step in the right direction, and we believe it will be appreciated. We are a little doubtful about the keeping qualities of the pyrogallol tablets, but are assured that they have been compressed by a new method, which will at least extend their keeping qualities if it has not entirely overcome all difficulties. But we do not think this part of the question of much importance, for the days of pyrogallol are numbered, and we believe that hydroquinone will keep well in tablets. Nevertheless, if neither of these organic substances should keep, the comfort of having tablets of other chemicals, which keep better in a compressed form than in crystals, is not to be underrated, and we believe this method of using photographic chemicals will become well established in the future.

We believe that the hydroquinone will keep many months in the form of tablets, and this is practically all that is necessary. Pyrogallol in crystals will deteriorate in time, but it is good for at least a year if care is taken to keep the package closed and in a dark place. Hydroquinone keeps very much better than pyrogallol under ordinary circumstances; we therefore feel assured that these tablets will keep almost indefinitely.

We are prepared to hear some one say, Oh, yes! tablets are all very well, but the idea is not a new one. To which we simply reply, we have not gone into ancient history, but they were not on the market until to-day in the form mentioned above, and we believe them worthy of attention even if the alchemists of the middle ages had the idea and failed to utilize it. We are satisfied that this form of photographic chemicals will prove a boon, at least to amateurs.

EDITORIAL NOTES.

One of the latest ideas in photography is to make a cannon ball record its course through the air, or, in nautical phrase, keep its own log. For this purpose it is proposed to inclose within the ball a sensitive surface, and a spot of light falling on it from an opening in the outer shell will determine the wanderings of the projectile in its flight. We have not seen any prints from such negatives yet; these may come later.

The Berlin Amateur Photographic Society are arranging a jubilee exhibition of all branches of photography, scientific, technical and historical, to celebrate the fiftieth anniversary of photography. The exhibition will open in September and close in October of this year. For American exhibitors collections will be made by the publishers of the Bulletin, and should be marked "For Berlin Exhibition, care of E. & H. T. Anthony & Co., 591 Broadway, New York." We hope our readers will take note of this and send contributions.

The exhibition at Philadelphia of the united societies of Boston, Philadelphia and New York takes place April 8th to 20th, and exhibits should reach Philadelphia before March 25th. There is no doubt the exhibition will be a grand success.

To those who have written to us about copies of the pictures of the moon taken with the great Lick telescope, we would say, that Professor Holden, who

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has charge of the observatory, has very kindly given us permission to have extra copies printed from the original negatives, and our publishers will have them ready at an early date.

THE first lantern slide exhibition of the Stevens Photographic Society was held at the High School building, Hoboken, N. J., on March 12th last. We regret that we could not be present, and tender our best thanks to the officers for their kind invitation. Many of our scientific schools now have photographic societies that are doing good work and we are glad that Stevens Institute is among the number. Professor Morton's old love for the art is doubtless the incentive for the new organization.

ONE of the most enjoyable entertainments recently given by the Society of Amateur Photographers of New York was a lantern slide exhibition entitled "Illustrated Boston," by the Boston Camera Club. Among the pictures was the first map, the city of to-day, harbor, docks, yachts, ferries, the navy yard, Copp's Hill burying ground, Old South Church, herdics and hospitals, railroad stations, the old market, Faneuil Hall, Custom House, and the massacre.

A picture of the old State House was shown, from which building George III. was proclaimed King, the last of the colonial Kings, and where, later on, the Declaration of Independence was read. Then followed Post Office square, City Hall, King's Chapel, Institute of Technology, Art Club, Trinity Church, the Common and the frog pond, and other places dear to the hearts of Bostonians.

The entertainments in preparation are "The Metropolis of America," by the Society of Amateur Photographers of New York; "The White Mountain Region," by the Boston Camera Club; "Illustrated Chicago," by the Chicago Lantern Slide Club; "Glimpses of California," by the Pacific Coast Amateur Photographers' Association; "The Creole City," by the New Orleans Camera Club; "Philadelphia Illustrated," by the Photographers' Society of Philadelphia; "Cincinnati Illustrated," by the Cincinnati Camera Club; "St. Louis Illustrated," by the St. Louis Camera Club; "Louisville Illustrated," by the Louisville Camera Club; "Baltimore Illustrated," by the Baltimore Camera Club.

THE Yonkers Photographic Club was organized on February 15, 1889, by the election of the following officers: G. Livingston Morse, *President;* Robert M. Reevs, *Secretary and Treasurer;* and the following Executive Committee: Salter S. Clark, R. Eickemeyer, Jr., and F. W. R. Eschmann. The club has forty members and the roll is still growing. A very fine suit of rooms, overlooking the Hudson River and Palisades, has been secured in the Deyo building, corner Warburton and Wells avenues, which are now being fitted up in the most approved style. Regular meetings are held on the first Friday of each month and the annual meeting on the first Friday in April.

W. E. GRAHAM, of Schroon Lake, sends us an excellent view taken at Taylor's, in the Adirondacks, just after a heavy snow storm. The fantastic forms of the snow are very well caught and form an interesting snowscape. The picture is clear, sharp and very well done from a photographic point of view.

ANOTHER good picture comes from Edgar T. Scott, of Amherst, Mass. It is a clean cut, well taken picture of a country farm-house, nestled behind

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some old elms, denuded of foliage, but whose graceful arms tell of the beauty of the spot in warmer days. The work is excellent in every respect.

THE New York Camera Club held an "opening night" at its rooms, 314 Fifth avenue, on March 13th. Mr. George Marshall Allen exhibited his collodion slides of the Yosemite region, and the members and their friends enjoyed a pleasant evening inspecting the club's new quarters. We hope soon to be able to describe the new club rooms for the benefit of our readers.

WE are indebted to Professor S. W. Burnham, of the Lick Observatory, for a reprint of the "Double Star Observations" made by him with the great telescope. The pamphlet exhibits much patient research on the part of the Professor and tells of the discovery of many new stars. We tender our best thanks for his kind remembrance.

THE POSTAL PHOTOGRAPHIC CLUB.

ABOUT two and a half years ago we were delighted every now and then with a ramble through one of the albums of the Postal Photographic Club. All at once these albums ceased to come to us, and we thought that, like too many of these amateur efforts, the club had passed away, and nobody took note of its departure. Some time ago we were very much pleased to hear that this delightful method of comparing the progress of our art among amateurs was about to be revived, and a few days ago we had the pleasure of receiving a note from Professor Randall Spaulding, accompanied by two of the albums of the rejuvenated club.

We are glad to note that the management of the club is now in the hands of Professor Spaulding, Dr. Max Mueller and Mr. Vernon Davey, and we feel assured that under their guidance it is destined to become all that was expected of it by its original friends and those who labored for it in former years.

In the albums we have received there are some beautiful examples of photographic skill, and, what is particularly encouraging, a marked advance in various printing methods, a phase of photographic work sadly neglected by amateur photographers.

"Morning," a particularly handsome bromide print, from Mr. F. A. Jackson, of New Haven, is one of the best pictures in the albums. A curve in the road, a beautiful tree with its graceful branches, the rich foliage of the hedgerows, and the soft light of the early morning, with its mellow shadows, gives a scene of surpassing beauty and full of the dreaminess of the artist's thought.

A number of architectural studies by Mr. J. Albert Cole, of the Washington Camera Club, are thoroughly well done, and speak of clean, sharp lens effects and great skill in the management of the development.

"Sheep," a group of these animals by Miss Littlejohn, of Brooklyn, is a very pretty study in light and shade, and an excellent picture of an uncommon subject.

An excellent "Interior," by Dr. Max Mueller, showing a private billiard room with its comfortable accessories, is very well done.

Two flash-light studies by Mr. H. Harrison Suplee, of Philadelphia, entitled, "Almeh" and "Afternoon Tea," are well caught and the light well managed. A little more side light from white reflectors would improve the modeling; nevertheless the work is excellent in this class.

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"On the Rockaway," by Professor Spaulding, is a little gem of scenery, soft and exceedingly picturesque.

"Dandy on his Doorstep," by Miss Gillender, of Tarrytown, a pug dog with a very well caught look of interest in photography, and a caged parrot in the background very much interested in said dog, make an unusually life-like and somewhat humorous study. Miss Gillender also contributes a view of "Irving's House" which is particularly fine in the foliage effects caught.

"A Jolly Pair," a couple of bright looking babies, by Mr. Vernon L. Davey, should be seen to be appreciated; they are full of baby-life and joy. Another good effort by the same contributor is "Blossoms," an excellent picture of a Wistaria in full bloom, with a group of children peeping through its branches.

"Eavesdropping in Disguise," another picture by Miss Littlejohn, also "Falls, Mountain Dale, N. Y.," and a particularly good interior, all show unusual skill on the part of this lady.

Vase and Flowers, showing the effect of ortho-chromatic plates made with erythrosine, the work of Dr. H. G. Piffard, using magnesium flashed with gun-cotton, are excellent results in the comparison of plain and ortho-chromatic plates. A view from "Cornwall Heights," using an ortho-chromatic plate and giving a view with a distance of eight miles, the foreground being about nine hundred feet from the lens, tells more than words the beauty of this method of photography.

"A Winter Landscape," by Mr. W. T. Colbron, the President of the New York Camera Club, is a very fine piece of photographic work; but the view is decidedly dreary and lacks the feeling that some foliage in the scene would give to the same landscape.

"Rock Creek, Washington, D. C.," a sepia platinotype by Mr. J. Albert Cole, is a very pretty picture, but a trifle too dark, to our minds.

"In the Maple Grove," a scene in a New Hampshire sugar grove in winter, with a team of stout oxen drawing a heavy sled, carrying a sugar barrel, is a very good piece of work, by Mr. Samuel Wadsworth. Also "After the Snow Squall," by the same gentleman. Both these snowscapes are exceedingly well caught; for the subjects are by no means easy, and we see more failures than successes in this class of work.

"Chester Creek," by Dr. Max Mueller, a very pretty little view of a stream rippling along with all the charm and beauty of a spot where trout might love to hide and dart at the unsuspecting fly.

A very handsome platinotype called "Landscape with Elms," by Mr. W. A. Prentiss, is a gem of photographic work of this kind. The graceful trees, the soft and yet well defined shadows, the detail in the distant scene, all make the picture a very artistic one.

"Sperry Glen," another bromide by F. A. Jackson, is an excellent effort on this paper and shows what can be done in skilled hands.

"Good Evening," by H. Harrison Suplee, a flash-light study of a lady in a white dress emerging from behind dark portière curtains, is an excellent effort; but we agree with one of the members of the Club that the title is not good, the eyes are too wide-awake for evening. The same contributor has another which is one of the best flash-light effects we have seen. It is called "What Shall I Say?" a lady sitting at a secretaire writing, with the quill pen held to her mouth in a thoughtful mood. The idea is well caught and the detail in the picture is exceedingly well brought out.

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"Roadside," a little gem of a waterscape, by F. C. Briggs, is very pretty and makes us wish to see something more of the same member. It is full of fine detail in the foliage, combined with soft effects of light and shade.

We can only notice one other gem, "On the Brandywine," by Dr. Max Mueller, a charming little view full of artistic feeling and showing excellent photographic skill in its production.

Altogether we have enjoyed our ramble through these albums very much, and advise our readers to obtain a look at them if they can get the chance, or else become members of the club. We tender our best thanks to Professor Spaulding for his kindness in giving us an opportunity for so much enjoyment.

LETTER FROM GERMANY.

Ortho-chromatic Photography.—Pyrocatechin, a New Developer.—The Chemical Action of Magnesium Wire Burning as Single Wire, and Three or Six Fold. —Permanency of Writing on Gelatine Plates.

JUST now I have received yours of February 9th with the interesting article of Dr. Piffard about ortho-chromatic photography. I notice, with satisfaction, that this field of photography, disclosed by me (having already discovered and published in 1873 the principle, according to which ortho-chromatic plates can be produced by coloring with certain coloring matters), meets with more and more interest in the United States. In Germany it is nothing new any more. I know that thousands and thousands of German photographs, reproductions from oil paintings, exist in the United States. All these pictures have exclusively been made with ortho-chromatic plates. Since 1883 the large establishments for reproductions in Germany use no other but ortho-chromatic plates, and while Dr. Piffard expresses himself very unfavorably about eosin silver, these plates here gain daily in popularity for landscape photography. Some stock dealers even, who do business exclusively in amateur articles, as for instance Weber in Leipzig, will keep no other plates but the eosin silver plates. But I know also that Mr. Kurtz, in New York, for the last four years has made copies of oil paintings on azalin plates, which fact is not mentioned at all by Dr. Piffard, although the subject has often been discussed in your journal, and he has had sufficient opportunity to see a great number of views (perhaps several hundred) made with the same at Kurtz's gallery.

Dr. Piffard was very kind in mentioning my name in connection with the matter, to undervalue what I recommended as first-rate and to speak about "untenable theories," while those set up by him are more doubtful than the ones he calls untenable. He will kindly permit me to correct him in some instances. He mentions in the history of the matter Mr. Ives' name first, although Mr. Ives did not begin with ortho-chromatic photography until 1878, while I have worked it since 1873. He says that Mr. Ives worked chiefly with collodion, whereas the other investigators devoted their energy to ortho-chromatic gelatine plates. That is not quite correct. I came to my discovery by studying the absorption bands of different colors with the spectroscope, and concluded from Draper's theory of the connection between chemical action of light and the absorption of it by different silver salts that the dyes I examined might have the power to sensitize bromide of silver for the colored rays they absorb in the spectroscope. I tried it first with corallin. This gives an absorption band in the greenish yellow. I dyed a collodion plate with it and observed that

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this became sensitive to greenish yellow of the spectrum. I then tried aniline green. This gives in the spectrum an absorption band in the red and exactly in accordance with this it sensitized a collodion plate for red. Afterwards I made experiments in the same way with fuchsin, magdale red, aldehyde green, methyl violet and cyanin, and all confirmed what I had expected from the spectroscopic examination—*i. e.*, the dyes mentioned sensitized the bromide of silver for the same colored rays they absorbed in the spectrum. In this way I confirmed my theory which led me to the said discovery; that is: Certain dyes have the power to sensitize the bromide and chloride of silver for those colored rays which they absorb in the spectroscope. In this way I worked from 1873 to 1875. Becquerel was the first to follow me, and observed in 1875 that chlorophyl sensitizes the collodion for red and yellow rays, and that it gives, exposed to the solar spectrum, three maximum bands of chemical action, exactly in accordance with its absorption bands. Thus my theory was confirmed again, and the same was the case with eosine, carmine and Judson blue, first tried by Colonel Waterhouse, Calcutta, and published in 1876. After such success by me and others I am justified to maintain a theory confirmed by first-class scientific men. From the dates given Dr. Piffard will learn that he is wrong if he says, page 80: Carmine and fuchsin don't "orthophotize" (will say, are not color sensitizers). If Dr. Piffard will follow the fluorescence theory, I advise him to read Eder's researches, who has thoroughly contradicted Schiendl's assertions about this theory. Dr. Piffard says further that he prefers ordinary eosin plates to eoside of silver plates. I would also recommend to him here to read Eder's researches and not to use Mallmann's formula, but those I have published two years ago in "Photographische Mittleilungen," Vol. XXIV, page 87,* and Vol. XXIII, page 211. In the last-mentioned volume he will also find two landscape pictures from the same subject, with the same exposure at the same time, and he will learn from them that the eoside of silver plate is with regard to foliage in the foreground far superior to the ordinary plate, which will contradict sufficiently his assertion, page 77 of this journal. Further, I take the liberty to remark that he is mistaken about the nature of erythrosin and eosin B. The bluish eosin is identical with erythrosin; both are tetraiodo-fluoreseïnes. The best colors he will find at E. & H. T. Anthony & Co.'s. They import them from Germany. Azalin can be had from Mr. Kurtz.

The hydroquinone developer is now in the foreground and drives away pyro and iron more and more. But it seems this has found already a new competitor in pyrocatechin.

Dr. Arnold writes to me about it: "Although the gram of pyrocatechin costs at present still 1 mark, while the price of hydroquinone for the same quantity is only 4 pfennigs, the preparation is applicable, as its capability of reduction is in proportion to hydroquinone about 15 to 1. I use 0.05 gram pyrocatechin and 5 grams carbonate of potassium, dissolved in the necessary quantity of water, for each plate, 18 x 24 cm. The pyrocatechin being more easily soluble in water than hydroquinone, I fix my developer when traveling by adding to the soda solution for each plate of 18 x 24 cm. a very small pinch of pyrocatechin and dissolve

* The formula is:

Erythrosin (solution 1:100 in water)	50 c. c.
Nitrate of silver (solution 1:1000)	50 "
Water (distilled)	100 to 200 "
Liq ammonia (sp. gr. 0.95)	2 to 3 "

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the same by shaking. The new developer possesses all the advantages described in *Nature*. Particularly may be mentioned the pure and harmonious development, and that the development can also take place proportionately quick in very cold solutions. The developed plates can be fixed in day-light after slight washing. According to the degree of light, the quantity of carbonate of potassium is increased or reduced. Bromide of silver gelatine paper and transparencies are treated with the same developer as mentioned above. There is no doubt that as soon as the pyrocatechin is used in larger quantities, its price will be greatly reduced, and that at such a time it will be a strong competitor with hydroquinone. About the durability of the solutions I have still some tests under way, but I hope that in the meantime this preliminary communication may animate others to further tests."

To this I would remark that pyrocatechin as well as hydroquinone are isomeric bodies. The composition of both is:

$$C_6 H_4 (OH)_2$$

The magnesium flash photography has made further progress. It is remarkable that the first ones who introduced flash pictures, Messrs. Gädicke and Miethe, used considerable quantities of magnesium—for instance, for a portrait at least 1 gram—while Mr. Schirm accomplishes the same thing at present with 5 centigrams. This fact appears now more explicable by considering the experiments with magnesium wire.

Mr. Haberlandt asserted last year that six wires, twisted together and burned at one time, do not furnish as much light as a single wire which is as long as all six together. Further tests were promised.

These tests have now been made by Mr. Schultz-Hencke, and the following figures prove that Mr. Haberlandt is correct:

Weight of the Burnt Magnesium.	Duration of Burning.	Degree in Vogel's Photometer, 25 Cm. Distances.	Relative Effect of Light — Average.
	1. Single Wire:		
3.774 grams	19 minutes.	14-15 degrees.	28
3.450 "	22 "	14-15 "	
3.4418 "	16 "	14 "	
	2. Double Twisted Wire:		
3.6878 grams	12 minutes.	13-14 degrees.	22
3.6856 " (the lamp extinguished several times)	13 minutes 16 seconds.	13 "	
3.7086 "	12¼ minutes.	13 "	
	3. Triple Twisted Wire:		
3.698 grams	8¾ minutes.	12-13 degrees.	18
3.7096 "	7½ "	12-13 "	
3.6744 "	8 "	12-13 "	
	4. Six Times Twisted:		
3.400 grams	4 minutes 45 seconds.	10-11 degrees.	12.50
3.4540 "	4 " 45 "	10-11 "	
3.3695 "	4 " 45 "	10-11 "	

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The burning took place with a Süss lamp. The quantities of wire being about equal, it can be seen from the table that a wire of a certain weight, burnt single, furnishes about two and a quarter times as much light as the same wire twisted six fold.

Herr von Gothard recommends an expedient to put writings on gelatine plates. He wrote with a finely-pointed steel pencil. The writing done with the same develops black and is durable. I explain the action as a chemical one of the steel point. Dr. Wolf, from Heidelberg, writes now to me:

"This explanation is not admissible, having made for a long time the same kind of writing after the proceeding of Gothard, but with a gold needle. On all of my star plates the same writing appears fine and deep black. An action of the material 'iron' is therefore excluded."

My friend Leonard and myself have just now tested a number of other materials with regard to the "action of pressure," namely: 1 steel (iron); 2, gold; 3, nickel; 4, aluminium; 5, brass; 6, glass; 7, sealing wax; 8, bone; 9, wood; 10, tobacco.

Bone acted best, wood and sealing wax the least, but all had a photographic action.

According to these tests it is, without doubt, a mechanical pressure that causes developments not only with collodion plates, but also with gelatine plates. If former tests gave contrary results, it must have been due to too slight a pressure.

BERLIN, February, 1889.

AMATEURS AND PROFESSIONALS.

BY AJAX.

IT is a question whether the ground taken in the BULLETIN, page 114, in regard to the line to be drawn between the amateur and professional in the art photographic, is not too sharp. Many persons will doubt the possibility or propriety of considering an individual a professional who has never made a photograph for love nor money, and, in fact, who does not know how to take a picture. The societies formed a few years since started out with the idea that the professional was a very dangerous kind of a person. He might be tolerated if he was a simple picture maker like Sarony, Bogardus, or Fredricks; but no one who had anything to do with making or selling cameras or other apparatus could be safely allowed to come into a society on the same footing as those who practiced the black art for pure love. This idea was enforced in the most rigid manner. It was universally conceded that there must be a Shibboleth and that he who could not frame to pronounce it properly must be cast into the outermost darkness.

This idea has not changed in the least and society men are as rigid in their ideas of entire exclusion of professionals as they ever were. It is beginning to be found, however, that many valuable men are cut off from entrance where they are wanted. If the line is to be so sharp, then to know just when it should be drawn we must go back to the reasons which make the line necessary. When the New York Society of Amateur Photographers was first formed, the great fear was that it would fall within the influence of some great photographic firm and become a handle to a business instead of an independent society. In spirit,

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though scarcely in words, they adopted the theory of the athletic clubs which was stated in the BULLETIN.

This theory is that the trade makes a man professional. Hence there are men who cannot be amateurs even though they never competed in any athletic game. The idea of trade or connection with it introduces the element of commercial influence. It was the fear of this commercial influence which pervaded the New York society when it was first organized.

The bias resulting from business interests is certainly powerful. It is considered so important in athletic circles that a man connected with a bicycle factory whether a rider or not is classed as professional. The same would be true with any one in a sporting goods house. Probably the workmen in a canoe factory would be barred from an amateur canoe race.

Now it is easy to see that as far as actual harm to the amateur society is concerned, the man who has a photographic invention to sell is more dangerous and harmful even though not a photographer than the professional photographer who sells pictures. It is easily seen that the inventor, the camera maker, the man who has all sorts of good photographic patents in his head, is far more likely to make an improper use of the society than the man who makes pictures for money.

It appears most reasonable that one of two things should be done. The rules should be made so strict that no person who is connected in a business way with photography or who has a pecuniary interest in the art should be allowed in the amateur class. This should include lens makers, camera makers, dealers, agents, and in a word all who have a monetary interest even of the remotest kind. On the other hand, the rule should be relaxed and should be made to cover only those who sell photographic goods or inventions.

It may appear strange that no mention is made of those who take photographs for money. So far as their influence upon the society goes it can only be for good, and hence it would be a pity to exclude them from the benefits or to deprive the society of the advantages which would come from their membership.

It will probably be found that the best course is to altogether ignore these distinctions of amateur and professional. Let the name be the keynote of the class. If the art is practiced for love it matters little whether there is an income also. Some of the most enthusiastic "Lovers" (amateurs) of photography that this country has had have been men who earned their daily bread by taking photographs. On the other hand, there are numberless men posing as amateurs whose sole object appears to be the disposal of their inventions and the introduction of their apparatus.

Will it not be quite as well in the future, therefore, to either abandon the distinction entirely between the classes, or to draw the line with all the sharpness possible? Any middle course works injustice and aggravates the evils which it was desired to avoid.

I READ it with much interest, as it tells me what are the workings of men who are investigating the unknown world, for the benefit of us poor mortals, who are merely learning our alphabet of the wondrous art.

CHARLES SLOSSON.

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PHOTO-GRAVURE PROCESSES.

BY ERNEST EDWARDS.

[Read before the Society of Amateur Photographers of New York, February 12, 1889.]

In general terms all practical photographic methods and processes depend on the action of light on one or the other of two substances.

Light, under certain conditions, blackens certain salts of silver.

Light, under certain conditions, hardens certain organic substances, such as gelatine.

By the first action we produce our negatives and print our silver photographs.

By the second action we produce printing plates from which we print with ordinary printing ink.

The application of this second action is the foundation of the various processes of photo-mechanical printing.

All of these depend, of course, on both actions of light—first in the production of the negative, second in the production of the printing plate.

There are four leading lines of photo-mechanical printing methods—photo-engraving, photo-lithography, photo-gelatine and photo-gravure.

Photo-engraving is understood in this country to mean "cuts to print with type."

Photo-lithography is the process by which a stone is prepared for ordinary lithographic printing by photography instead of by hand.

In both photo-engraving and photo-lithography the prints must be made in dots or lines, but by an ingenious device the half tone of the photograph is closely imitated. This is effected by breaking up the half tone into a series of very fine dots or lines.

The methods mostly in use by us are those which give true photographic half tone.

These are the photo-gelatine and the photo-gravure methods.

The photo-gelatine process is known under a multitude of names; Albertype, heliotype, artotype, Lichtdruck, Indo-tint, collotype, are some of them, but they all mean the same thing; that is, printing from the surface of a layer of gelatine, variously supported, and on which a printing image has been produced by light.

The *modus operandi* of obtaining such an image is, in its broad principles, simple enough.

An ounce of gelatine is dissolved in, say, ten ounces of water, at a temperature of 100 degrees Fahr. To this solution is added 40 to 50 grains of bichromate of potash and sufficient alcohol to make an easy flowing liquid. This is flowed over a plate of glass or metal and dried in an oven at a temperature of 120 to 140 degrees Fahr. on a level plate, so that when dry a very thin, even solution of bichromatized gelatine remains on the plate. The gelatine-coated plate is exposed to light under a negative, and now comes in the second action of light. The light passing through the negative hardens the gelatine in the shadows, partly hardens it in the half tones, and produces no effect where it is prevented from penetrating by the opaque parts of the negative.

The gelatine-coated plate, which now has the printing image produced on it, has only to be washed in water to prevent the further action of light when it is ready for the press.

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It is inked up in the same general method that a lithographic stone is inked. But the sun has been the artist and has drawn the half tone of the photograph as no hand could have done it.

Photo-gelatine printing, to the reader and onlooker, seems to be the simplest thing in the world.

On account of the "contrary" character of gelatine, it is in truth the most difficult, as those who have been longest at the work best realize.

It will be seen that the reproductions by this process have a character all their own, and for a certain delicacy of result and true photographic effect they are unapproachable.

In the photo-gelatine process it will be seen that a new printing surface or material, gelatine, has been brought into use.

In photo-gravure, the oldest printing material, copper, and the oldest method of printing, is employed, but the action of light takes the place of the engraver's tool. There is not time at my disposal to do more than briefly sketch the processes employed.

The result desired to be obtained is an intaglio plate to be engraved by photography and to be used for printing on a copper plate press.

In the photo-gelatine process we have described how a plate is coated with a thin, even layer of bichromated gelatine made sensitive to light. If we prepare this gelatine on a copper plate and after the action of light place the plate with its light-produced image in an etching bath, it is evident that the etching fluid will penetrate the gelatine where the light has not acted, and where, therefore, the gelatine is not hardened. It will penetrate less where the light has hardened the gelatine slightly, and it will not penetrate at all where the gelatine is altogether hardened by light. In this way we have a plate etched more or less deeply, according to the gradations of the photograph, and therefore reproducing all the gradations of the photograph. This, very broadly, is the underlying principle of our process of photo-gravure.

Two essential conditions must be observed, however, in order to make the process practical.

In the first place, in using a negative to print on the gelatinized copper plate, it is apparent that the picture would be a negative. Therefore a positive or transparency must be made from the original negative to print on the gelatinized plate, in order that the final picture may be a positive.

The other necessity is that there must be a "grain" on the copper plate in order to give it an ink-holding capacity. This is effected by "laying a ground," as in the aquatint method, or by dusting the surface with resin or asphalt which is melted by heat—in both cases, of course, before the application of the gelatinous surface.

The etching fluid does not penetrate these fine points of resin, and the underlying copper is protected and remains in the shape of a number of minute pyramids, which prevent the ink being wiped out. The rest of the process of reproducing photo-gravure pictures is the ordinary method of copper plate printing, requiring, however, greater skill and care in its execution.

Whilst photo-gelatine printing is marked by the delicacy of its results, the characteristic feature of photo-gravure is its strength and richness, which may be further heightened in the various steps of the process, as well as subsequently, by the hand of the graver.

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THE DETECTIVE CAMERA; A SUMMARY OF EXPERIENCES AND OPINIONS.

BY HARRY T. DUFFIELD.

[Read before the Society of Amateur Photographers of New York.]

AMONG photographers, especially amateurs, the camera which has been generally, but unfortunately, named "The Detective" has become a great favorite; and it occurred to the writer that a paper summarizing the experiences and opinions of experts with this instrument would be of interest. Forms of questions were prepared and sent to the secretaries of a number of photographic societies in this country. It was the intention of the writer to send these forms to all of our societies, but time prevented him from so doing.

The secretaries were asked to place the forms of questions into the hands of those members of their societies who were most expert with the detective camera. Thirty-nine sets were returned with the questions answered, and as they come from ladies and gentlemen familiar with the instrument, their statements are entitled to have much weight with us. The writer returns his thanks to the secretaries of our sister societies for their kindness in complying with his request, and to the ladies and gentlemen for their courtesy and promptness in replying to his queries.

The first questions asked were, the name of the answerer, the society of which he is a member, and the make of the camera. Twelve of the thirty-nine are home-made or made from owner's designs. One says his is "a leather covered shoe-blacking box." The lenses are the make of Ross, Dallmeyer, Beck, "Euryoscope," Watson, Suter, Beck, Shew, Gray, Bausch & Lamb, Gregg, Gundlach, Français, "Optimus," Morrison, Darlot, Laverne, Wales and unknown persons.

Then came:

What size of detective camera do you prefer? Eleven answered, $3\frac{1}{4}$ x $4\frac{1}{4}$; twenty-two, 4 x 5; two, $4\frac{1}{4}$ x $5\frac{1}{2}$; one, $4\frac{1}{4}$ x $6\frac{1}{2}$; one, $4\frac{3}{4}$ x $6\frac{1}{2}$; two, 5 x 7. Those preferring the quarter size, generally say that they do so because the dry plate it holds is the right size for making lantern slides by contact, and enlargements can be nicely made from it.

Is it necessary that the camera should be so constructed that observers' attention will not be called to it? The majority answer "No;" but it is preferable if made unobtrusive; that it is almost impossible to so construct it that people will not "catch on it;" that nothing, however, that tends to affect the simplicity of the mechanism of the camera should be sacrificed in making it inconspicuous. A number think the detective cameras of to-day sufficiently unobtrusive for all ordinary purposes, especially street work.

Which is the best way to hold the camera so that it will be steady while making an exposure? Under one of the arms, the right generally, pressed closely to the side, the hand of that arm keeping it steady, while the other hand operates the release of the shutter. Hon. Alvey A. Adee, Assistant Secretary of State, Washington (D. C.) Camera Club, says: "I rest my larger boxes on my left fore arm, not touching the body; the right hand works a bulb, and does not touch the body." Harry D. Williar, Amateur Photographic Society of Baltimore (Md.): "I have a push-button on the right hand, upper corner front, of my camera; I take a firm hold with the left hand, palm on the bottom, and steady with the thumb on the side, and then with nearly the same position of the right hand on the right side of the camera, and thumb pressing on the push-button, or handy to it, I take a firm hold with the right, and I never have a blurred negative. At one time I pressed it against my side and found at times blurred negatives." L. M. Petitdidier, Cincinnati (O.) Camera Club: "Under the right arm, with the right hand reaching under the box and one or two fingers controlling exposure by pressing a button at will. If the camera be so held, any motion communicated to it by the body will be a slow one, and for ordinary exposure there will be no movement noticeable. I never had any case of shaking in the detective camera." W. T. Wintringham, Brooklyn (N. Y.) Academy of Photography: "Resting against the right hip." William A. Bullock, Photographic Society of Philadelphia: "Under the arm, resting upon the hip. Hold your

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breath when pulling the trigger. Do not rest the camera upon the stomach, and bend over it, as though you had an ache in that locality; it is not graceful, and always attracts attention." J. V. Black, Society of Amateur Photographers of New York: "I find no difficulty in holding mine perfectly steady under my right arm, pressing the spring with the thumb of my left hand, when the shutter is set at a medium speed; but for the slowest speed of the shutter, I usually hold the camera directly in front of my body, with the back against it." D. E. McComb, Washington (D. C.) Camera Club: "Pressed tightly against the breast."

Should not the camera have a swingback? For detective work it is not necessary; for view work, quite essential, is the general opinion. W. M. Butler, St. Louis (Mo.) Camera Club: "No; because this requires a small stop, and thus prevents instantaneous work." Albert H. Pitkin, Camera Club of Hartford (Conn.): "Would prefer a rising front." Charles Simpson, The Society of Amateur Photographers of New York: "Decidedly yes; and I see no reason why manufacturers have overlooked this very important feature." Major George Shorkley, U. S. A., Society of Amateur Photographers of New York: "Yes, two of them." Edgar Richards, President of Washington (D. C.) Camera Club: "Certainly, if architectural effects are to be reproduced; for landscapes, not necessary." George Marshall Allen, Society of Amateur Photographers of New York: "If it would work automatically." Walter Clark: "It is best to keep the detective as simple as possible." The following question was asked: "If a camera with a swingback is used without a tripod, is it not liable to give greater distortion than a camera without one?"

Do you think it necessary to have a finder? Should there not be two? Should there not be hoods over the finders? Four consider it needless; seven, that it is an advantage to have a finder, but not absolutely necessary; twenty-eight, that it is indispensable; nine, that one is sufficient; twenty-nine, that two are desirable. Hoods are also considered desirable. Charles Simpson: "I have two finders on my camera; a camera without any would be of no value to me; when you want to take a picture either way (vertical or horizontal), you must have a finder for each position to be sure of your field." W. M. Butler: "A finder is quite needless; if three round head screws be placed on the outside of the camera, giving the angle corresponding to the angle of view of the lens, all the purposes of the finder will be fulfilled without any of the annoyances of the usual form." A. A. Adee: "A finder is very necessary; one is sufficient, as it can be viewed as easily from the side as above; a cover, hinged and standing upright, serves as a hood." Harry D. Williar, Amateur Photographic Society of Baltimore (Md.): "I think a finder absolutely necessary, but do not see the advantage of two; but I do think that it should have a hood, as at times I find it almost impossible to get along without one, and, in fact, have concluded to put one on my box on a hinge; for, outside of its usefulness, it is a means of hiding the purposes of the box, and makes it a little more mysterious, or rather less conspicuous, to the uninitiated. I make a hood with my hands to answer the purpose until I can get the chance to make a good one on hinges." Isaac T. Norris, Amateur Photographic Society of Baltimore (Md.): "I think two finders so essential that I shall have an extra one put in; the hood I do not feel so necessary, as I make a hood of my hand." L. M. Petitdidier: "Have tried without and with finder, and emphatically pronounce in favor of finder; do not consider a hood necessary; good only to keep off dust." Edgar Richards, President of the Washington (D. C.) Camera Club: "Finders essential, and to embrace the same angle of view as the lens cuts on the plate; certainly two; hood to screen off the light an improvement." Robert Baker, Society of Amateur Photographers of New York: "Very important to have two finders; if well sunken in the box there is no need of hoods." Frederick Bruce, Society of Amateur Photographers of New York: "Only use one finder, as the other cannot be made exact; consider hoods necessary." E. Terry, Society of Amateur Photographers of New York: "Two finders necessary, and also sights." Walter Clark: "Not essential; the large finder or full plate on which to focus, I consider a powerful aid to intelligent composition and the study of nature."

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Should not the detective be made solely for detective work, and not also be arranged for view work? Nine answer, for detective work only; twenty-nine, for both. Robert E. M. Bain, St. Louis (Mo.) Camera Club: "I believe that it should be arranged for detective work only." Archibald I. Carson, Photographic Section Cincinnati Society of Natural History: "If 'detective' be used in the strict sense of the term, it should not be so arranged; otherwise yes." Isaac T. Norris: "If only for detective work, many of its appliances may be abandoned; while if used for view work also, too many cannot be added." Major George Shorkley: "For detective, not tripod use, but should have a time shutter." Sydney Bishop, Society of Amateur Photographers of New York: "For the average amateur, both ways." W. T. Wintringham, Brooklyn (N. Y.) Academy of Photography: "Immaterial, provided the arrangements for time pictures are not complicated." William A. Bullock: "There is no need of a tripod attachment to the camera; all that it is capable of doing can be accomplished holding it in the hands." Walter Clark: "The vest camera and others of that class are the only true detective cameras; the province of the so-called detective I consider to be the production of satisfactory pictures of moving objects or random bits of interest to tourist or pleasure-seeker, or notes for the artist, architect or engineer, to be gathered right and left with minimum of effort." William M. Murray, Society of Amateur Photographers of New York: "If the camera is as large as 4 x 5 it adds to its value to have it arranged for view work; I have used mine with a tripod for time pictures, and have made my best work with that arrangement." Miss Catharine Weed Barnes, Society of Amateur Photographers of New York: "I should not have bought a detective unless it might be used for view work."

What should be the focal length of a lens to cover with full opening the plate used? Robert E. M. Bain: "The lens should be of about 6 inches equivalent focus; and should cover the plate all over with a stop of $\frac{f}{11}$." Archibald I. Carson: "I prefer a size larger lens than the plate used for various reasons; both for covering power and focal length." Sydney Bishop: "The lens should be one size larger than the plate, *i. e.*, a 4 x 5 for a quarter plate, etc." W. T. Wintringham: "Focal length should equal or exceed the diagonal of plate, and aperture should be as large as possible, $\frac{f}{4}$, if it can be obtained with good covering power and definition." W. M. Murray: "Not larger than 7-inch focus for a 4 x 5 plate; that gives an angle of 39 degrees; 6-inch focus would be better, covering a view of 45 degrees."

Do you prefer a rapid rectilinear or a wide-angle lens? Thirty-five, rapid rectilinear; two, wide-angle; one, both. Harry D. Williar: "For confined situations of course the wide-angle is best; but for general work give me the rapid rectilinear." Edgar Richards: "The lens for detective work is yet to be made, of an angle of view between 30 and 40 degrees." W. T. Wintringham: "The rapid rectilinear, at $\frac{f}{8}$, is a necessity, and $\frac{f}{6}$ is better; and these apertures cannot be obtained in a wide-angle lens." Robert Baker: "A medium wide-angle is best." W. M. Murray: "If a wide-angle is used it should be a moderate angle, so as not to greatly distort the perspective."

Is it not an advantage to have both of these lenses, and should not all detectives be so constructed that the lens can be quickly changed? Twenty, no; fifteen, yes. A. A. Adee: "I do not think it would be an advantage to change from a rectilinear to a wide-angle lens, unless the necessary change of focal length could be effected automatically at the same time; to change one and not the other in a hurry would cause disheartening failures." Richard H. Lawrence, Society of Amateur Photographers of New York: "Yes." L. M. Petitdidier: "This would involve too much complication, and would perplex the artist, and lead him into errors and regrets; too much choice is injurious." William E. Bond, Society of Amateur Photographers of New York: "I think it would be an advantage." Edgar

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Richards: "Do not see the necessity; would make construction of the camera proper more complicated, unless lenses of the same approximate focus were used; all lenses for any kind of work should have bayonet joints and fit in the same flange, within limits of course." William A. Bullock: "(*a*) Yes; (*b*) it would be a convenient arrangement." E. J. Carpenter, Cincinnati (O.) Camera Club: "The use of two lenses in a detective camera is not advisable; it is sure to confuse the operator, particularly in focusing."

How does the single lens do for this kind of work; is it rapid enough? The majority answer that they have never tried the single lens for detective work, and therefore cannot express any opinion. W. M. Butler: "No, except some high-grade lenses, like Dallmeyer's, which costs as much as a rapid rectilinear." A. A. Adee: "A good single lens works quicker and with deeper range of definition than a doublet of the same aperture." Albert H. Pitkin: "Of two lenses of equal foci and openings—one single and one double combination—the single should be the quickest if made of the same glass." F. C. Beach, Society of Amateur Photographers of New York: "Yes, with good light; but it is apt to distort somewhat." W. A. Bullock: "It will do well where there is brilliant illumination; I have taken instantaneous pictures with it at the sea-shore." E. J. Carpenter: "Single lens will answer for some kinds of work in summer."

Do you use a fixed or movable focus? Ten, fixed; twenty-eight, movable. A. A. Adee: "I use a fixed focus with all my cameras; the 4¼ x 5½ works sharp for 40 feet and beyond; the 3¼ x 4¼ for 25 feet and beyond; the others still shorter range. The 4¼ x 5½ camera has a Suter Aplanat, series A, 7-inch focus; the quarter plate a Beck Rectilinear, 5¼-inch focus." Archibald I. Carson: "Fixed focus at 18 feet; Beck Rapid Rectilinear, quarter size, 5-inch focal length." W. A. Bullock: "Both, but mostly the *f* of the lens." E. J. Carpenter: "Focus for every view, estimating distances 8, 10, 12, 15, 20, 30, 50 feet and distance." L. M. Petitdidier: "Movable focus I think is indispensable." W. T. Wintringham: "Movable, but seldom used except for very near work." Frederick Bruce: "Movable from 10 feet to universal focus about 100 feet." W. M. Murray: "A movable focus with 7-inch lens on a 4 x 5; but if I used a shorter focus lens I should use a fixed focus."

What diaphragm do you chiefly use in summer and in winter, the summer season being from May to November, and the winter from November to May? General answer: In summer, $\frac{f}{16}$; in winter, $\frac{f}{8}$ to full opening. James H. Stebbins, Jr., Society of Amateur Photographers of New York: "Always $\frac{f}{15}$, only changing the speed of the shutter." Sidney Bishop: "For street work the next stop to full opening, and for water the next smaller in summer; for street work full aperture, and for water the next stop in winter." W. T. Wintringham: "The largest, varying exposure by the speed of the shutter." Frederick Bruce: "$\frac{f}{11}$ always." E. Terry: "Third, whenever I can." Miss Barnes: "Full opening." E. J. Carpenter: "About $\frac{f}{8}$." George Marshall Allen: "Depends entirely on conditions; no one more than another." Charles Simpson: "Summer, medium or next largest; winter, next to the largest; I never use full opening."

Which diaphragm is best to use when the object is in bright light and in shade? General answer: Bright light—summer, $\frac{f}{16}$ and $\frac{f}{22}$; in winter, $\frac{f}{8}$ and $\frac{f}{11}$. Shade—summer, $\frac{f}{11}$ and $\frac{f}{16}$; in winter, $\frac{f}{8}$ and $\frac{f}{4}$. Of course the diaphragm varies very much with the conditions of light, but the object of both of these questions was to ascertain the stops generally used. For marine views, $\frac{f}{22.6}$. William J. Hickmott, Camera Club of Hartford (Conn.): "I always use the largest diaphragm I can; don't think I ever over-timed a plate very

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much." Harry D. Williar: "I generally use the largest diaphragm that I consider will do the work." A lady amateur, Worcester (Mass.) Camera Club: "At the sea-shore, $\frac{f}{22.6}$; when snow is on the ground, $\frac{f}{16}$ and $\frac{f}{22.6}$." Major George Shorkley: "$\frac{f}{16}$ in bright light, summer, otherwise $\frac{f}{11}$; I prefer to use as rapid a shutter as possible." Walter Clark: "I vary my diaphragm very seldom."

What is the principal fault of your shutter? Fourteen are satisfied with their shutters. W. M. Butler: "No definite means of regulating its speed." R. H. Lawrence: "No means of knowing its speed." Albert H. Pitkin: "No means of adjusting speed." Archibald I. Carson: "Arranged simply for instantaneous exposure." Isaac T. Norris: "To control the speed more perfectly, or at least to know its speed." Rev. E. C. Bolles: "That it gives uniform exposure of the whole field." Edgar Richards: "That the speed of exposure is not uniform, being more rapid at the beginning." W. A. Bullock: "That you can never be sure of the speed twice running the same." E. J. Carpenter: "Cannot change the speed as quickly as I would like." John Leshure, Springfield (Mass.) Camera Club: "Not quick enough."

What is the average speed of your shutter when making exposures? W. M. Butler: "Winter and summer, $\frac{1}{25}$ second." Harry D. Williar: "Generally give it slowest speed, except for marines, ice, snow, etc." L. M. Petitdidier: "From $\frac{1}{10}$ to $\frac{1}{100}$ second (?); in summer, $\frac{1}{10}$ to $\frac{1}{100}$; in winter, $\frac{1}{10}$ to $\frac{1}{25}$." Major George Shorkley: "Summer, about $\frac{1}{40}$ second; in winter, $\frac{1}{25}$." Rev. E. C. Bolles: "As fast as it will go, say $\frac{1}{10}$ second." Sydney Bishop: "As fast as it will go." Edgar Richards: "Highest tension of speed." W. T. Wintringham: "Highest speed, $\frac{1}{100}$ second; lowest, $\frac{1}{80}$." F. C. Beach: "Probably $\frac{1}{25}$ second." Walter Clark: "Prefer slow shutter." W. M. Murray: "Half-speed generally." D. E. McComb: "About $\frac{1}{60}$ second in summer; about $\frac{1}{25}$ second in winter." A. L. Simpson: "Except on the water, as slow as possible." H. M. Grisdale: "Summer, $\frac{1}{60}$ to about $\frac{1}{100}$ second; winter, as slow as it is possible to get subject still and sharp." John Leshure: "Summer, $\frac{1}{40}$ second; winter, $\frac{1}{25}$ second." The majority of the answers reply: "Don't know," and "Can't find out." The beautiful candor of this general reply, when there was such excellent opportunity to display scientific knowledge, shows that the character of the photographer is susceptible of the highest moral cultivation.

Should there not be some means of indicating the speed of the shutter? Thirty answer, "By all means;" eight, "Not necessary." A. L. Simpson: "No, as any one with experience can guess." H. M. Grisdale: "At least some means of getting the same speed as often as wanted." Charles Simpson: "Yes; that is the fault which most detective cameras have; mine has a lever which can be moved forward and back one inch, and I can accurately judge the speed of my shutter." J. V. Black: "Yes; I could record mine by number only, which would be useless for comparison." R. E. M. Bain: "Do not think it necessary; your judgment and experience should tell you what speed to use, and it takes quite a long experience to do artistic shutter work." A. A. Adee: "Yes, if reliable; but I doubt if a trustworthy indicator would show the degrees of speed above $\frac{1}{100}$ of a second." William J. Hickmott: "Don't think it would be any great advantage; detective cameras are already too complicated." L. M. Petitdidier: "Good photographs can be and are made without this means, but I think much better and more uniform results could be obtained with it." Sydney Bishop: "Yes; though I always use my shutter at full speed, and depend on development to correct any error, except in case of shade, when I slow my shutter." Edgar Richards: "A spring that is in tension constantly becomes fatigued and fails to give the same speed as at first; this is especially true of phosphor bronze; exposure at various speeds of the shutter on falling bodies, and measuring and calculating, gives the most correct results of the time of exposure and a ready means of checking off results at any time; the speed of shutter and diaphragm of lens used depends on sensitiveness of plate employed, season, time of day,

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and rapidity of motion of subject, and must be modified accordingly." William A. Bullock: "Yes, there should; I consider it a much needed improvement." Walter Clark: "Not without one had some effective light gauge." E. J. Carpenter: "Desirable as a matter of curiosity."

(*To be continued.*)

THE TRIALS AND TRIBULATIONS OF THE PHOTOGRAPHER.

BY ABRAHAM BOGARDUS.

[Read before the Society of Amateur Photographers of New York.]

(*Continued.*)

A WRITER in the "Philadelphia Photographer," in 1864, in an article entitled "A Trip to Pike County," says: "A good stock of tannin plates had been exposed. The plates failed to yield much even to the most powerful agencies, and in some cases those plates which had been exposed over half an hour, after being coaxed with fuming, alkaline development, etc., gave merely the high lights. It was unanimously carried that the wet process alone should be trusted in the next attempt."

And in the May number of 1864, he says: "A short distance up the creek there is a fall in a dark corner, where the sun never penetrates. We came to the conclusion that no wet plate would remain wet long enough to give us sufficient exposure, and that it should be intrusted to the dry process. This would have necessitated the loss of several days, and it was proposed that we should wait until the railroad in contemplation, connecting the Belvidere Railroad with that valley, should be made, so that a dry plate might be exposed and left there, when we could return to the city, attend to other occupations and go back after one week or a fortnight." (Prolonged laughter.)

Charles Wager Hull, in the "Philadelphia Photographer" of February, 1867, says: "In my opinion the dry process has but one trouble, which, I much fear, will never be overcome; that is, its slowness compared with the wet."

The same writer in the same publication, in January, 1869, speaking of the experiments to make the dry plate just what they want it to be, says: "Not satisfied with experimenting with 'things' which kill and destroy life, experimenters have rushed madly into the kitchen and the butler's pantry, and seized upon tea, coffee, sugar, gelatine, ale, beer, porter, claret, and one extra ambitious chap (I have forgotten his name) took the bitters which he had purchased for his morning cock-tail, and by its use reported that his negatives were 'superb.'" (Laughter.)

In the same publication, September, 1869, Dr. Herman Vogel, in his German correspondence, says: "One of the favorite subjects of experimental photographers is the working of dry plates. How much has been written on this point! All organic and inorganic substances have been successively tried—albumen, tannin, linseed, coffee, tea, sugar, honey, molasses, beer, gum, glycerine, rosin, etc. I must confess, however, that after years of trial I have arrived at the same conclusion as my friends Remele and Braun, in Dornach. The latter told me that he had spent 15,000 francs on experiments with dry plates. It is easy to pack chemicals, apparatus and tent in the same time that it requires to prepare a single dry plate. I feel confident that the saving of labor and time is largely in favor of the 'wet process.'"

G. Wharton Simpson, in the "Philadelphia Photographer," in 1870, says: "The newest dry plate process and in many respects the most philosophical—I mean the collodio-bromide—except in a very few hands, has not been successful. As a rule, experimentalists have failed in employing this process." "And it is also the fact that some who write most dogmatically on the subject, never produce anything presentable at all. Every now and then we hear laments on the untrustworthy character of dry processes. A recent article by Herr Most, in a German journal, takes up this position and institutes a comparison between the wet and dry methods, very much to the disparagement of the latter."

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I have been requested, as I said in the outset, to stick to my text. What is it? (Laughter.)

Now I will give you, with your kind permission, a few incidents as they happened day after day. It is a very easy thing to write and talk about photography, but to the man that stands under the skylight it presents a very different attitude. People may not think so, but let them try it. To see thirty and forty different people come up in the course of a day, all different faces—you are expected to make the best view of each face—a face that you never saw before and perhaps never will again, and you are expected intuitively, at a moment's notice, to make the best picture of that face—it requires an amount of brains that very few have any conception of. And you are asked unreasonable things all the time.

I remember once a lady brought three children, two boys and a girl, to my gallery. They came well armed. The little girl had a doll. There was a hobby-horse brought up, and the other boy had a gun. It was evident that the girl was to hold the doll; that was agreed; but which boy was to ride the hobby-horse? That was to be left to my superior judgment. It was not an easy thing to decide, because both wanted to mount the hobby-horse, and after I had decided it, the mother said she did not want this picture taken like all the "doggertypes" were taken. She wanted the girl in the middle of the room, the boy on the hobby-horse over on the other side of the room, and the boy with the gun on the other side of the room. (Prolonged laughter.) Well, it was a very brilliant idea, but how my quarter size camera was going to reach them all, I could not tell, and I told the lady that it was impossible; and I tried to explain to her about the concentration of the light, the lenses and all that sort of thing, but she did not know anything about that; and she finally said to me that she heard I was supposed to be accommodating, and that she had been to three different places, and they all told her what I did, and she did not think that I was any better than any of the rest of them. (Laughter.)

One day a Paddy brought in a small case, and he said he wanted a life-size picture put into it. (Laughter.) It was a difficult thing in those days to make people understand the difference between a full length and a life-size, and I told him it would not hold a life-size, and then he said: "Well, then, take it with the legs hanging down." (Prolonged laughter.)

When General Logan was at my place having a sitting I remember something that occurred. The General was usually a very reserved man. It was seldom that you could get him to talk, but this time he saw on the walls a man he did not like, and he said to me: "I see that you take anybody's picture." "Oh, yes," I said, "that is my business. I don't have time to inquire into a man's private character when he comes here for a picture." "Well," he said, "I suppose you would take the devil if he would sit for a picture." And I said: "Undoubtedly we would;" and I added: "I suppose we could run off a good many down around Washington." (Laughter.) "Yes," he said, "that is the place to sell them."

A man came to me one day. He did not like his picture. Oh, how many didn't like them! (Laughter). He said to me: "My picture looks like the devil." "Well," said I, "I could not say, for I never had a sight at that individual; but sometimes a resemblance will run all through families." (Laughter.)

One morning a lady came into my place, who had two other ladies with her; she ran up to the counter and said: "My picture is twenty years too old; I won't have it, and I want to sit again." The man at the desk passed her right up-stairs as soon as possible for another sitting, and as she was passing up one of the ladies said in an undertone: "Ugly old thing, she looks exactly like it; she only wants to try another dress." (Laughter.)

There is another incident that I wish to mention right here before I forget it. It is something that never came under my experience, but I heard of it. The man, in pointing his camera at the sitter, knocked it a little one side, and instead of having the picture in the middle of the plate he got the man away off in the corner, and afterwards scolded the man because he did not sit in the middle. (Laughter.)

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Another old lady came in one day and said she wanted her picture "front face, but a little three-cornered." (Laughter.)

I recollect one day two ladies bringing in their mother. A sitting then required thirty seconds. We had a side screen, and after the great deal of preliminaries and the daughters' fixing the old lady's cap in a way that they thought would be the most becoming, I raised the cloth and stepped behind the screen, so that she could not see me, because I did not want to disturb her, and at the expiration of the thirty seconds I emerged from behind the screen and went to the camera and found the old lady looking out the window. (Laughter.)

Here is another one. I wish you could have seen it. A very fine looking girl came in with a diminutive specimen of an escort, for a picture, and after I had arranged the position and got my camera all ready, she said to me: "Where must I look?" This little fellow jumped out from behind the screen—he was fully three feet high—and cried out: "Look at me!" and the young lady commenced laughing and we could not make a sitting of her. (Laughter.)

Another time an old lady was in the chair—we sat her about thirty seconds I think; when it was about half over I heard some talking in behind there, looked, and she was motioning with her hands and crying out, "Stop it, stop it! I winked." (Laughter.)

Dr. Tyng, the old gentleman, was sitting one day and I said to him, "Doctor, I have now made some sittings front face; now I wish you would turn to the left, because I would like to take some side views." And he turned around and said: "Mr. Bogardus, I am an upright man, and I would not turn to the right or to the left for any one." (Laughter.)

Then we have had some sad scenes. I remember one day a German woman came in with a bundle and commenced to unroll it, and after she unrolled it I found it was her dead baby. She brought it there to have a picture taken. So that with all the hilarity, as we call it, we have some sad scenes now and then in the practice of the art.

There was a very singular remark made to me once in my gallery by a Judge who was sitting for a picture, and the gentleman who accompanied the Judge there that day said: "Now, Judge, look dignified. Look just as you did the last time you sentenced a man to be hanged," and the Judge said, "I don't know about that, for that man was reprieved." (Laughter.)

But in my experience in the profession, I have learned a good many things, and one of the things I have learned is that stout people always want to look thin and thin people always want to look stout. The older ones don't want the wrinkles to show, and they all want to look a little younger. Many and many a time old ladies have come up to me and would ask me if I could take their picture without showing the wrinkles. "Yes," I would say, "but where will the likeness be?"

A photographer is said not to have any mercy. I remember once a certain Judge came with his wife to have a picture taken. The Judge was suited with his picture, but when we showed the lady her picture she doubted whether she had quite so many wrinkles; and he straightened himself up and said: "My dear, if you had wanted a handsome one you ought to have commenced thirty years ago." That settled it. I did not have to say another word.

But there were sometimes very laughable scenes in my gallery. I received one time I guess as many as three different letters from a person whom I had never seen—she was a lady; she wanted to sit for a picture. She had been so unfortunate; she had tried here and there to have a satisfactory picture of herself and they were all "horrid." Well, of course I had my misgiving about the matter. What the trouble was I could not tell exactly. So I felt very anxious to see her come on the appointed day. A private carriage rolled up to the door, and the dressing maid jumped out and brought all the paraphernalia in. I suppose she weighed at least 250 pounds, was gorgeously decked out in a low-necked dress, skin very nearly the color of a lobster, and was very particular to tell me that she had had so many bad ones taken of herself. I made up my mind that, with the material I saw before me, it would be a pretty difficult job to suit

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her, and so, sure enough, after I made the picture she agreed with me exactly, "that it did look horrid." (Laughter.) I did not have to say any more. I never got any pay for that picture.

In conclusion I would say, young gentlemen, I am glad to meet you. I am glad there are efforts being made to elevate photography, because I have a high idea of it myself, and I believe it is yet undeveloped. The possibilities of photography are still unknown to us. There are more secrets in it than we have ever solved. People think it is about exhausted, but I think there is a future to it, and I think somebody, with patience, study and experimenting, will bring that future out.

To all interested I say, study well, delve deeply into this great mystery, and some mind will yet evolve from photography results that will cause mankind to look with wonder and astonishment; and, as I have said elsewhere, some name will go ringing down the ages as having added to the pleasures and requisites of man, and, crowned with the applause of his fellows, his fame shall last as long as time and light continue. (Prolonged applause.)

A MINIATURE DETECTIVE CAMERA.

LATELY there has appeared from the factories of our publishers another addition to the already large army of detective cameras. As this is of more than ordinary interest, and a step in the direction of what we conceive to be the true detective (we hate this word) or hand camera, we shall devote a portion of our space to its illustration, and a description of the results obtained with it.

In the first place, the entire apparatus is only 4 x 4 x 6 inches, and looks, with the carrying strap across the shoulder of the photographer, something like the leather case of a field glass. Owing to its small size it has been called, "The Lilliput," and has the appearance indicated in Figure 1.

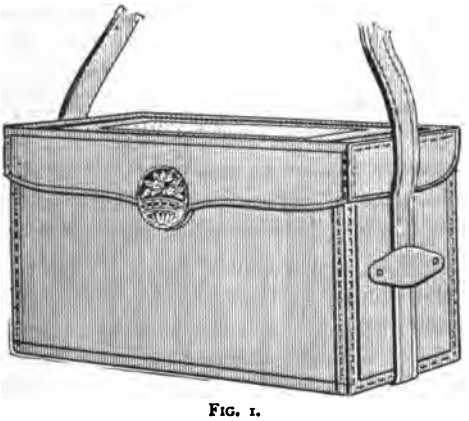


FIG. 1.

The interior of the case contains a camera with a lens of fixed (universal) focus; it is therefore unnecessary to make any change of focus to suit objects at varying distances, a great disadvantage in hand cameras of the ordinary construction. The plate holders carry dry plates 2½ inches square and a picture of this size can be obtained; but there is supplied with the camera a cut-out which gives a circular picture about 2¼ inches in diameter, a very convenient size and form for making lantern slides. Six plate holders, carrying twelve dry plates, are contained within the case, into which they fit closely, and are kept in focus by a spring. As each plate is exposed (by drawing a slide and releasing the shutter as usual) the holder is removed to the rear of the box and squeezing it into its

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place forces a second holder into focus for the next shot. Fig. 2, giving a sectional view of the interior of the camera, will show this construction; the rings exhibited serve to lift out the plate-holders.

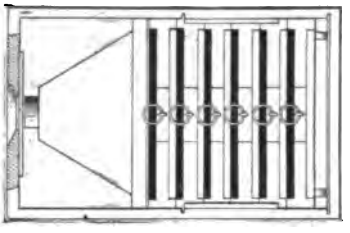


FIG. 2.

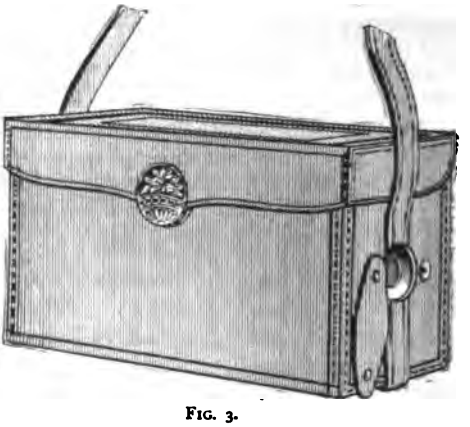


FIG. 3.

The plate holders are of the usual construction, and by a very simple arrangement of different colored slides the number of plates exposed can always be ascertained.

The shutter is very simple and effective, and admits of both time and instantaneous exposures.

The working of the camera is simplicity itself. The first step is to set the shutter (time or instantaneous at will); second, revolve the leather tablet that covers the lens on the outside of the box (see Fig. 3); third, draw the slide of plate holder; fourth, release the shutter, and the picture is taken. If a time picture is desired, after releasing the shutter it is closed by touching another spring. Having made the exposure, replace the slide in plate holder, remove it to the back of the case, when another plate is forced into position for a second shot.

One great advantage of this little instrument is that it uses dry plates, and you can develop the negatives yourself if desirable, or it can be done by others who know how to use plates. The results are particularly good in almost every instance, far more so than with ordinary hand cameras. The negatives are small in size, but they make excellent lantern slides, and are so sharp that enlargements six or eight times make beautiful pictures on bromide paper. We know of no instrument of like compactness that gives such good results. We have seen it used by a lady who never before took a negative of any kind, and the results obtained were as good as those obtained by others of considerable experience. The whole affair is remarkably cheap, when we consider the ingenuity and care displayed in its construction. We think that summer tourists of both sexes will have "lots of fun" if they will carry one of these little cameras with them on their rambles.

OUR ILLUSTRATION.

THE handsome portrait of President Benjamin Harrison, with which we illustrate this issue of the BULLETIN, is from a negative by Mr. W. H. Potter, the well known Indianapolis photographer. It has been reproduced in photogravure in a very perfect manner, and gives an excellent and life-like impression

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of the new President. Mr. Potter's work is always artistic, and the frontispiece of our journal is fully up to his high standard. *The picture is copyrighted by W. H. Potter.*

FIRST ANNUAL EXHIBITION OF THE PHOTOGRAPHIC SOCIETY OF CHICAGO, TO BE HELD IN MAY, 1889.

Programme.

The first International Exhibition held by the Photographic Society of Chicago will be open to all photographers, foreign or American, and will be held in Chicago during the month of May, 1889, probably at the Art Institute.

The object of the exhibition is for the promotion of the art science and technical excellence of photography.

Rules and Regulations Governing the Exhibition.

The exhibition to be held in Chicago and last two weeks.

The important details of the exhibition shall be in charge of a Committee of Arrangements, appointed by the executive officers of the society, and shall consist of not less than three.

At the annual exhibition Diplomas and other prizes will be awarded by a Board of Judges to be selected in a fair and impartial manner.

The number of awards to be made at the exhibition will be decided upon by the judges, according to the number of exhibitors and the merit of the exhibits.

All photographers, professional or amateurs, are at liberty to compete for prizes. They must become active or associate members of the Photographic Society of Chicago in order to qualify for such competition.

Entries for all exhibits must be made to the Secretary before the 15th of April. No exhibitor will be allowed to put on the front of the exhibit anything except the title and exhibitor's name.

All pictures to be sent at owner's risk. The society will not be responsible for any damage that may occur to exhibits forwarded, but will use all reasonable care to protect them.

After the exhibition, which will last two weeks, the exhibits will be repacked and returned to the exhibitors.

Classification of Prizes.

Class A.—Portraits and genre pictures by professionals.

Class B.—No. 1. Portraits and genre pictures by amateurs who complete the picture. This includes composition, exposure, developing, printing, toning, etc.

Class B.—No. 2. The same as B. No. 1, by amateurs who do not complete their picture, but includes composition and exposure.

Class C.—Landscape and Marine Photography.

No. 1. By Professionals.

No. 2. By amateurs, same as in Class B. No. 1.

No. 3. By amateurs; same as in Class B. No. 2.

Class D.—Flash-light photography.

No. 1. Portraits and genre by professionals.

No. 2. Portraits and genre by amateurs, conditions same as Class B. No. 1.

No. 3. Portraits and genre by amateurs, conditions same as Class B. No. 2.

Class E.—Detective camera work.

Class F.—Instantaneous photographs.

Class G.—Animals.

Class H.—Kodak.

Class I.—Transparencies.

No. 1. For window.

No. 2. Lantern slides.

Class J.—Photo-micrography.

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Class K.—The best negatives on celluloid films.
No. 1. Instantaneous.
No. 2. Time exposures.
Class L.—Platinum prints.
No. 1. Black.
No. 2. Sepia.
Class M.—Best prints on linen, silk, or any fabric.
Class N.—Bromide enlargement done by exhibitor.
Class O.—Bromide prints contact.
No. 1. By professionals.
No. 2. Amateurs, conditions as in No. 1 B.
Class P.—Photo zinc etching for newspaper—best collection done by staff of paper exhibiting.
Class Q.—Photography pertaining to the profession of the law.
Class R.—Celestial photography.
Class S.—Exhibit pertaining to medico-photography.
Class T.—Exhibit of prison and police photography.
Class U.—Exhibit of photo-mechanical printing process.
Class V.—Exhibits of ortho-chromatic photography.
Class W.—Exhibits of photographs in competition for prizes other than those given by Society.

PRIZES OTHER THAN THOSE GIVEN BY THE ASSOCIATION.

Already several manufacturers and dealers wishing to encourage the exhibition have generously offered prizes.

The Smith & Harrison Dry Plate Co. will give one prize of $50 in gold and another of $25 in gold also.

The Harvard Dry Plate Co., of Cambridge, Mass., will give valuable prizes.

The Blair Camera Co. have promised a prize of the value not less than $50.

Gayton A. Douglass & Co. offer a Laverne ortho-panactinic lens with Iris diaphragm and Laverne shutter for 5 x 8 plate, value $48, for best collection of 12 platinum prints.

Sweet, Wallach & Co., of Chicago, offer one 8 x 10 imperial lens for the best display on the McGowan Dry Ferrotype Plate.

The Eastman Dry Plate & Film Co. will donate a Kodak camera complete, to be given as a prize for the best collection of not less than 25 Kodak pictures.

N. C. Thayer & Co. will give a prize.

Associate members (non-resident); this will entitle any one to compete for prizes to be awarded by the society; the fee is $3.

To compete for all prizes awarded by the society and others, the fee will be $5.

Pictures from abroad can be sent unmounted.

It is expected that an addition will be made to this list of prizes, as several more have been promised.

Any photographer wishing to exhibit and not compete for prizes or diplomas can do so free of charge, if the exhibit is considered of sufficient merit by committee in charge.

JUDGE J. B. BRADWELL,
President.
Prof. G. W. HOUGH,
1st Vice-President.
G. F. CHARLES,
2d Vice-President.
GAYTON A. DOUGLASS,
Treasurer.
C. GENTILE,
Secretary.
M. J. STEFFENS,
FRANK A. PLACE,
H. D. GARRISON, M.D.,
Executive Committee.
SECRETARY'S OFFICE,
134 *Van Buren Street.*

All exhibits entrusted to our care will receive our attention, and we will have them handed to the committee in charge.

All communications for the columns of the BULLETIN *should reach us on Monday preceding the day of issue, to insure their publication at that time.*

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ANTHONY'S
Photographic Bulletin.
EDITED BY
Prof. C. F. CHANDLER, Ph.D., LL.D.,
Aided by ARTHUR H. ELLIOTT, Ph.D., F.C.S.
and a corps of practical assistants.
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Advertisements should reach us not later than the Saturday preceding the issue for which they are intended, otherwise we cannot promise to publish them in the succeeding number. It is also necessary to notify us of any alteration before the date above mentioned, and to state for what period the advertisement should be continued—whether for one, six, twelve or twenty-four issues.
E. & H. T. ANTHONY & CO., Publishers.

LYNN CAMERA CLUB.

THE Lynn Camera Club held a special meeting Tuesday evening, at which President Drew demonstrated the following ammonia process for making emulsion and coating of dry plates.

There are two kinds of gelatine used in making this emulsion, the soft and the hard; for the former Nelson's No. 1 photographic gelatine may be used, and for the latter Heinrich's. Both are cut into small pieces before using, for ease of weighing and in order that it may dissolve more readily.

Weigh out 5 grains of Nelson's No. 1 gelatine, and put it in 4 drachms or ½ ounce of distilled water, and add 30 grains of ammonium bromide. Ordinary tap water should not be used in the process of making an emulsion, as the successful making of it depends upon extreme cleanliness throughout, and tap water contains more or less mineral and earthy matter. Let the gelatine swell about forty minutes. The dissolving of the gelatine should not be hastened by heat, as that is apt to make it difficult to manage. Now take 30 grains of hard gelatine (Heinrich's) and place it in just enough water to cover it. In a separate receptacle dissolve 40 grains of nitrate of silver in 4 drachms of water. The operations up to this point may be conducted in white light, but the rest must be performed with red light only. Bear in mind that the smallest amount of water possible should be used in all operations.

The next operation is emulsifying. If the hard gelatine is not yet dissolved it may be heated up to 120 degrees F., but the emulsion must never reach a higher temperature than 100 degrees F. The silver in the four-drachm silver solution is now precipitated by adding, a drop at a time, a solution of strong ammonia, until the silver is all precipitated, which is indicated by the solution assuming a dark brown color. More ammonia is now added slowly until this precipitate is redissolved. It is well to allow the contents to be exposed to the air a few minutes so that any excess of ammonia can evaporate. It should only have a faint odor, if any. This solution is now added in very small quantities, a drop at a time at the start, to the soft gelatine solution, the bottle being thoroughly shaken all the time. The thorough shaking while this operation is progressing, and the cureful addition of minute quantities of the silver solution, especially at the start, are important factors of success. Now add the Heinrich's gelatine, which should have a temperature of about 80 degrees F. After being thoroughly mixed the emulsion is poured out into a dish and put away to cool and set.

The emulsion is next strained through a coarse mesh cloth, such as "railroad canvas," into a dish of cold water, and washed, this operation being repeated six or seven times. A small sieve is necessary here to recover the emulsion from the washing dish. Care should be exercised to keep the hands from contact with the emulsion as much as possible, to prevent contamination of the product, and the temperature must be kept low, about 50 degrees F. The washing should occupy from fifteen to twenty minutes, and six to eight changes of water are necessary. This washing removes all the uncombined salts and should be performed thoroughly. After the last washing add a small amount of alcohol to the emulsion and allow it to stand about ten minutes. Redissolve the emulsion at 100 degrees F. and set it away to "ripen," which will occupy a period of about three or four days. The emulsion must, of course, be inaccessible to dust or dirt.

After the emulsion has ripened it is redis-

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solved at 100 degrees F. and enough gelatine added to give the requisite body for flowing on the glass plates. With the quantity used in this case we should add from 12 to 18 grains, the gelatine (Nelson's No. 1) being first dissolved in the least possible amount of water. After the emulsion has "ripened" the plates may be flowed.

Level a marble slab (a plate glass or heavy metal plate may be used instead, the object being to obtain a perfectly even surface, whose temperature will not change readily), having previously cooled it in water to about 40 or 50 degrees F. The glass plates, with their surfaces perfectly cleaned, should now be coated with the emulsion. It is well not to polish the plate, as it will be difficult to wet it with the emulsion. A good plan is to wash the plates in a bath of water to which has been added some alkali, such as soda or potash, wash in slightly acidulated water to neutralize any alkali adhering to the plate, and dip in alcohol and dry without rubbing the surface. The emulsion can be drawn over the surface of the glass plate by a small glass rod. The plate is now placed upon the cold slab or plate to set, which occurs in a few moments, and is then placed in the dark closet to dry. An improvised closet may readily be made from any old box of suitable dimensions. False bottoms and tops are inserted, so that a current of air is compelled to pass through long S shaped compartments before reaching and after leaving the plates. This is done to prevent the entrance of any light, and to this end also the whole box is covered with a dead black wash, such as a lampblack solution, so that all light is absorbed and no reflection can take place which might fog the plates.

The demonstration was quite a long one, and some of the members and visitors were obliged to leave before the finish, but those who remained were well paid by seeing so interesting a process. The President showed a negative made on a plate that was coated with some of the emulsion used in the last part of the demonstration, and it was a very fine one, showing the possibilities of the process.

J. W. GIBBONEY, *Secretary.*

PROVIDENCE CAMERA CLUB.

THE annual meeting of the Club was held March 2d, *President* FULLER in the chair. The committee appointed to procure a charter for the Club presented a copy of the act passed by the General Assembly February 8th, incorporating the Club, and it was accepted by a unanimous vote.

The Executive Committee reported on the lantern slide exhibition illustrating Narragansett Bay, showing it to have been a photographic and financial success. The slides for this exhibition being owned by different members, the Executive Committee were instructed to secure the slides for the use of the Club to place in the proposed Lantern Slide Exchange or to let for the benefit of the Club.

The committee on proposed exchange of lantern slides between New England clubs reported favorable action by two clubs, and communications from officers of five other clubs showing considerable interest in the matter and stating that their clubs would undoubtedly be in favor of the exchange.

Upon a vote the Chair appointed a committee of three to revise the Constitution and By-Laws of the Club.

The annual reports of the President, Secretary and Treasurer showed good progress and a prosperous condition.

The following officers and committees were elected for the ensuing year, and six applicants were elected to active membership: President, R. C. Fuller; Vice-President, L. L. Anderström; Secretary and Treasurer, J. E. Davison; Librarian, A. B. Ladd.

Executive Committee: President and Secretary *ex-officio*, C. R. Ferris, H. J. Reynolds, L. L. Anderström, B. Smith. Room Committee: R. C. Fuller, B. Smith, E. Q. Gladding.

After discussing the annual exhibition of photographs to be held at the opening of the Club's new rooms about April 15th, and passing a vote of thanks to the publishers of photographic publications for periodicals and books received during the past year, the meeting adjourned. J. E. DAVISON,

Secretary.

NEW ROOMS OF THE AMATEUR PHOTOGRAPHERS.

HIGH up in the new Swarts building now going up on the site of the old Theatre Comique, in the fourth floor, and even higher, upon the very roof, the Providence Camera Club will have its new quarters. Mr. Swarts, who is himself an amateur photographer, has had rooms fitted up especially with reference to the needs of amateur users of the camera, and when the building is completed the Club will move into the best accommodations that the amateur craft possesses in New England. The main room will be upon the corner and lighted with three large windows. The cross

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light thus obtained will be an invaluable thing in the outset to portrait photographers. But meetings and gatherings will be chiefly accommodated by this apartment, which is of ample dimensions for the Club and its friends at present. Electric lights will light it, and the connections are so arranged, all at one end of the room, that when exhibitions of lantern slides are given the operator of the magic lantern can turn the oxy-hydrogen flame on with one hand and the electric light off with the other at the same moment.

But what the camerists will value most highly is the development room. Through one door into a little passageway, and then through another door, the sacred precincts of the dark room are gained, and just at this point will come one of the most valuable details in the new arrangements. The dark room must be dark; and to keep it from the entrance of light with unwary visitors, these two doors will be connected with a newly devised, electrically operated interlocking apparatus, such that when one is opened the other is locked, and both cannot be opened at the same time. Inside the dark room there will chiefly be an immense sink, accommodating five or six photographers engaged in "developing" at the same time, with ample supplies of running water and provisions for needed chemicals in great variety. There, too, each member will have his own locker. Light will be obtained through colored glass set just above the sink, behind which shine electric lights placed in the small passageway above mentioned. The window will be blank, except for a small aperture arranged for enlarging and reducing cameras, which will be further provided for by a long table in the middle of the room.

Up in a little look-out built atop of the roof is the printing room, closed in on three sides with sloping ground-glass windows. Upon the under sides of these the printing frames can be fastened, and the peculiar soft effect of printing under ground glass obtained if desired; or if the printer chooses, the ordinary full sunlight lies outside waiting for him to raise the window and use it. Being so high, this room has all the light that the heavens can offer, and there is scarcely a possibility that the sun's direct rays will ever be shut off from it in any degree by adjacent buildings. There, too, is the fine outlook over the buildings to the river, the masts of the vessels, the thin streak of water, fair enough at that distance, the smoke and steam of the coal pockets and their picturesque masses, and the rising slope of hill and house-top and church steeple upon the East Side—a view to keep some aspect of the picturesque always in the eye of the amateurs.

There is little that could be desired for the needs of amateur photography that will not be here afforded; for the special construction that Mr. Swarts has had in view for his friends of the Camera Club will assure this. They have no quarters at present, their rather insufficient ones upon North Main street having been given up some time ago. There are now upwards of forty members, and the Club has given token of its having come to stay by getting incorporated a few days since by the Legislature. Of the 200 or more amateurs now at work in Providence, the Camera Club includes a comparatively small proportion; but when it enters upon the possession of its promised luxuries, it will doubtless tempt a goodly number in addition to share these advantages with it.

CASE SCHOOL (CLEVELAND) CAMERA CLUB.

At the regular meeting of the Club Friday afternoon, March 8th, Mr. W. Williams was elected an active member. On motion of Professor Smith the Committee on Demonstrations was instructed to appoint a member each month to read before the Club such articles in the photographic journals as he would deem interesting and instructive. After discussing the different modes of making lantern slides and the sensitizing of exposed dry plates by immersing them in a bath of bichromate of potash, the meeting adjourned. At the next meeting Professor A. W. Smith will give a demonstration of the developing of a negative of the members of the society with hydroquinone, for the benefit of the uninitiated.

MILTON B. PUNNETT,
Secretary.

AMERICAN INSTITUTE.—PHOTOGRAPHIC SECTION.

CLINTON HALL,
19 ASTOR PLACE, NEW YORK.

REGULAR MEETING, MARCH 5, 1889.

President NEWTON in the chair.

The *Secretary* reported he had duly received for the section the usual photographic papers and journals monthly contributed to the Institute.

The Chairman of the Executive Committee announced as the subject of the evening, "The Early Days of Photography," and then

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read the following papers. The first, written by Alexander Beckers; the second, by J. B. Gardner. See next BULLETIN.

The *President* then introduced Mr. Abraham Bogardus, who read a paper entitled "Fifty years of Light—Fifty years of Practice—What are the results?" after which a paper was read by Mr. O. G. Mason. This was followed by speeches by H. J. Newton and Dr. P. H. Van der Weyde, the last named presenting to the section a complete set of daguerreotype apparatus and some few examples of daguerreotypes taken by himself as early as 1840. A special vote of thanks was tendered to the Doctor for so rare and valuable a gift.

Notice was then given of the informal meeting, March 20th, and the section, on motion, adjourned.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

REGULAR MEETING, FEBRUARY 12, 1889.

(*Continued.*)

A notice not given on the programmes sent out is the following:

"About the latter part of March there will be a ladies' meeting, at which papers on photographic subjects by ladies will be read, prints and lantern slides by ladies shown, lady singers and musicians will entertain us, and we hope to have a lady chairman of the meeting. On this occasion what is termed 'Photographic Fancy Work' will be exhibited, and any member who may have photographs on fabrics, china, wood, etc., and will loan them for exhibition at this meeting, will please communicate with Mr. Duffield."

You will notice hung up on the wall the prize pictures of the first annual exhibition of the Springfield Camera Club, a testimonial of the interest taken in that society by the representatives of this society.

"The Demonstration of the Ferrotype Process," by Mr. Griswold, is unavoidably postponed on account of his illness.

There is next a paper on "Lantern Slide Mat Cutters," by Mr. Joseph P. Beach, which I have been requested to read. See next BULLETIN.

At its conclusion Mr. F. C. Beach exhibited models of the steel mat cutters and sketches, showing the process of manufacture in full. The accompanying cuts made from the sketches fully explain the method of working.

Mr. Beach also exhibited the new Queen shutter invented by Mr. Frank Burrows. He stated that it consisted of two concentric crescent-shaped disks overlapping each other at the centre slightly, placed in a thin case between the lenses. They had an open-and-close movement, and were actuated by a spiral spring and lever on the outside, being released by a trigger operated either by hand or by a regular pneumatic piston. By moving a little cam the shutters could be held open for a time exposure.

The *President*—Mr. David Williams, one of our most prominent members, has been experimenting with film carriers or holders, and he has something to offer us which I am sure will be practical.

Mr. WILLIAMS—*Mr. President, Ladies and Gentlemen:* A film carrier is a thing to which I object most decidedly. I have seen several forms made by different manufacturers, but I do not find any of them convenient to use with a stiff celluloid film, 6½ x 8½ inches, on which most of my work is done. I believe that the holder of the future for celluloid, paper or any other similar films, is one of what may be called the book-form, in which the film may be laid face down, being kept in place by the fingers of one hand while the other side of the holder is turned down upon it. With this feeling I applied to Mr. Barnett as the person most likely to produce what I wanted, and induced him to make some modifications in his regular holder, which adapt it to the use of films. Some of you, perhaps all, know that Mr. Barnett's holder consists of two sides hinged together and clasped when closed at the edge opposite the hinge, one side being stiffened by a small frame of wood, and the other by turning up the edge of the pasteboard of which it is formed, thus gaining both stiffness and security against light.

One modification which Mr. Barnett has made is in putting this wooden frame on the other side of his holder, so that you can lay your film face down within the recess formed by it, and the frame of wood on the other side being made smaller than usual, fits inside of the first frame, clamping down the film securely in its place. I may say here that one great difficulty in handling celluloid films of the size I speak of is in the curvature or twist which all that I have seen have, and as the sensitive surface is always on the concave side, it is very difficult to place them in any holder or carrier which requires you to handle them with the sensitive side exposed. With the holders of which I am speaking there is no necessity of touching the fingers to the sensitive side, and the operation of putting them in and taking them out is about as easy as in the

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case of glass. Mr. Barnett is also experimenting on another plan, which I suggested to him, of making the recess on the front or slide side of his holder by a strip of brass, so placed that the frame of wood which stiffens the opposite side of the holder will close outside and around it, and which would be sufficiently high to hold a plate of glass. This holder would be equally convenient for either glass or films. The only difference in the operation of loading being that when a film is used it would be necessary to back it up with a piece of cardboard or other material to make up the thickness of the glass.

My dislike to the use of carriers is on account of the vexatious handling required. It is my practice usually to load say two dozen holders at a time, an operation which at the best, including the unloading and disposition of the exposed plates, occupies at the very least an hour. If the films have in addition to be put in carriers, the time required will be much greater, besides the danger of handling the sensitive surface. My experiments lead me to believe that in consequence of the absence of halation, the various films which are competing with glass will certainly take its place so far as landscape and ordinary amateur work is concerned, and I make this brief report of my own small experience as possibly assisting others who are looking in the same direction.

Mr. SIMPSON—They are single holders, are they not?

Mr. WILLIAMS—Yes, single holders. Mr. Barnett has been experimenting with double holders. The double holder involves a carrier, in his system, which shall have an arrangement for putting the film on either side of the cardboard, and then this cardboard is to act as a protector, preventing the light from passing through from one film to the other, and I think that can be made.

The *President*—I am much obliged to Mr. Williams for bringing up the subject in this way, and I hope it will be productive of a good holder.

A *Member*—I have used the ordinary Eastman film with the ordinary Barnett holder without any carrier of any kind, and have never been successful with it (that is, the holder).

The *President*—That shows already that our remarks are bearing fruit.

Is there anybody else that has anything to say in regard to the matter? If not, I will read a paper which has been very kindly sent in by Mr. Bachrach, of Baltimore. It seems that the reading and publication of a former paper through the medium of this society has got him into trouble; at least, he says he has had so much correspondence in regard to it, that he feels called upon, in self-defense, to give a statement in the same public way in which he gave the first one. See next BULLETIN.

The *President*—Mr. Beach has a paper on the effect of Electricity on dry plates, which subject I am sure he is fully competent to handle. Mr. Beach thinks that he had better save the paper for the next meeting. Our meeting has already about run the limits.

Mr. SIMPSON—In regard to the delegate of this society to the American Lantern Slide Interchange, I want to say that Mr. F. C. Beach has given universal satisfaction as our delegate heretofore, and he is better posted than any man in the society on the matter of the Interchange, and I propose his nomination as a delegate to the Lantern Slide Interchange for the year.

Motion seconded and carried.

The *President*—If there is no other business to come before the meeting, it will stand adjourned.

[Just after the close of the meeting Mr. Colt lighted his lantern, and a few slides were thrown on the screen. A very uniform screen or disc was obtained and many of the slides appeared to good advantage. He kindly presented the lamp used in the lantern to the society, and was accorded a hearty vote of thanks by those present, for his kindness and generosity.]

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting of the society was held Wednesday evening, March 6, 1889, with the *President*, Mr. FREDERIC GRAFF, in the chair.

The Secretary reported the death of Mr. Emlen Cresson, an active member of the society, which occurred suddenly on the 2d inst.

He also reported the presentation to the society, by Mr. Frederic E. Ives, the author, of a copy of "A New Principle in Heliochromy," and by Mr. Edward T. Wilder, of Boston, of a pamphlet entitled "The Dawn of Photography," by William T. Brigham, both of which were received with a vote of thanks.

Exhibition circulars, etc., were received from the Columbia College Amateur Photographic Society, the Montreal Amateur Photographic Club, and the International Photographic Festival and Exhibition, to be held in London, England, during March.

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The Executive Committee presented a report proposing a plan for the selection annually, by vote of the members, of four "Honor Pictures." The pictures submitted for this purpose to be exhibited in the room of the society during the month of December in each year, and to be from negatives made within eighteen months of the date of this exhibition. Each member to have one vote for four pictures, without restriction as to the number to be selected from the work of any one exhibitor. The report was accepted, and the proposed plan adopted.

The Committee on Lantern Slides made the following report:

Your Committee on Lantern Slides begs leave to report that at the Conversational Meeting, February 19th, the slides of the Philadelphia Amateur Photographic Club were shown. The committee venture to express the opinion that these slides were the best of the interchange series presented this season, both technically and artistically. Subsequently, slides were shown by George B. Wood, R. T. Hazzard, Robert S. Redfield, F. T. Fassitt, David Pepper, F. G. Rosengarten, O. D. Wilkinson, William H. Rau, C. P. Sinnikson and John A. Schulz.

The Manager of the American Lantern Slide Interchange has notified us that the English slides have arrived from London and will be here during the Joint Exhibition.

Several gifts of slides have been received, of which report will be made.

WILLIAM H. RAU,
FRANK BEMENT,
EDMUND STIRLING,
Committee.

The Committee on Joint Exhibition reported that responses from the foreign edition of circulars were beginning to come in, and a fine series of yacht studies by Messrs. G. West & Sons of South Sea, England, and also some pictures from Russia and Germany, had already arrived. Other foreign exhibits from distinguished English photographers were in prospect. The interest displayed by photographers in all parts of this country, not members of either of the three societies, was quite gratifying, many having expressed their intention of exhibiting.

Members, and other intending exhibitors, were reminded of the near approach of March 25th, the date fixed when all exhibits and entry forms must be in the hands of the committee. The committee being entirely dependent upon the applications for entry blanks as a means of knowing what exhibits can be depended upon, it was urged that every *intending exhibitor* notify the committee of his intention at the *earliest possible date*, and also that exhibits be delivered as promptly as they can be made ready, so that the inevitable rush of work at the last moment be relieved as much as possible.

The Committee on Membership reported the election of the following active members: George B. Philipps, Dr. William M. Sweet, James Laurence Dillon, Emlen L. Carolus.

A letter was read from Mr. W. E. Barrows, a member of the society, as follows:

ROBERT S. REDFIELD, Esq., *Secretary.*

Dear Sir,—Having occasion to use hyposulphite of soda for precipitation where freeness of foreign matter was important, we filtered fifteen pounds of that article through the accompanying filter. The hyposulphite of soda was purchased for photographic purposes from a manufacturer of established reputation in Philadelphia.

Query: How many good pictures have been spoiled by the dirt in hyposulphite of soda?

Very truly yours,
W. E. BARROWS.

PHILADELPHIA, PA., February 20, 1889.

Accompanying the letter was a piece of filtering paper containing a large amount of "foreign matter," which had been filtered out of the solution.

The condition of the filter seemed to indicate that Schuylkill water in its *most natural state* had been used either in the original preparation of the hyposulphite of soda or in the solution which had been filtered. How far such impurities could affect photographic operations was not discussed.

Mr. Theodore H. Luders read a paper on the treatment of windows in connection with interior work, recommending the use of flash-light compounds for obtaining the view beyond the windows, as well as the interior itself.

WINDOWS.

Any one who has made photographs of interiors has doubtless taken more or less interest in the window question, and tried in various ways to overcome the great difference in time of exposure necessary for the windows and the interior part of the room.

These ways include shading and closing windows, inside and out—the local use of restrainers in development, and of vignetting in printing, etc.

Wishing to try an experiment in developing and having no plate exposed, I set up a small

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camera opposite a window when it was almost dark, and left it for ten or fifteen minutes while I prepared my developer.

When the plate was developed I found an image of the window sash, curtains and shutters, and also of the trees and houses on the opposite side of the street, but nothing of the inside of the room. This suggested the possibility of getting a picture of the interior with the view outside on the same plate, and the flash-light seemed the thing to do it with.

The exposure by flash-light may be done at the same time as the other if the lens will permit, or if it is not desired to have the outside in focus, or it can be done after dark with a different stop, and so have the whole picture sharp.

The mode I found successful was to focus with the stop I intended to use for the flash, bringing the interior sharp, then inserting a small stop, and giving a suitable exposure for the outside about the same as if I was working out-of doors— rather a full than an under exposure, preferably late in the afternoon, even after sunset; then capping my lens I inserted the large stop and left the camera closed till it was quite dark, when I uncapped it and fired my flash powder.

The usual development seemed all right, and the result may be judged by negatives and prints shown.

In the "British Journal Almanac," 1889, there is a somewhat similar method described by an Australian correspondent, who uses, instead of flash-light, ordinary gas with long exposure.

Much might be said about the desirability of having in and outside both in focus at the same time, but that is a matter for individual taste and circumstances to decide.

I think any one who cares to try this experiment will find it quite interesting, and another pleasure added to the many that photography gives us.

THEODORE H. LUDERS.

Dr. Reed showed a film carrier, designed for use with Carbutt films, which had been brought to the meeting by Dr. Hollingsworth, a visitor, who had designed it.

Mr. Earle showed a flash-light devised by Mr. Edward M. Pim, a member of the society. The flame was produced by a coil of wick about two inches in diameter, which was saturated with alcohol. Tubes of glass about two inches long, corked at each end, were loaded with about ten grains of powdered magnesium. A tube of magnesium could readily be inserted in a brass tube beneath the wick, the corks being removed as it was inserted. Pressure on a rubber bulb, with tube connection, forced the magnesium powder through a slit in the center of the wick, producing a very brilliant light, which, by means of a cardboard reflector attached to the lamp, could be directed as desired.

Dr. Trueman showed an attachment for use with the Scovill Detective Camera by means of which the shutter could be readily operated, either for time or instantaneous exposures.

A device for setting the shutter of a Scovill detective camera, obviating the use of the usual string provided for the purpose, was described by Mr. Pettit.

Mr. Graff showed a portrait transparency made in 1845, by Mr. Langenheim, of Philadelphia. The precise process used was not shown, though, at that time, the paper prints known as Talbotypes were in vogue. The transparency was in a most excellent state of preservation, though, apparently, some detail in the whites was lacking. It had a peculiar, warm, purplish brown tone, which, so far as known, was the original color.

Adjourned. ROBERT S. REDFIELD,
Secretary.

What Our Friends Would Like to Know.

N. B.—We cannot undertake to answer questions of a technical character except through the columns of the BULLETIN. *Correspondents will please remember this. No attention will be paid to anonymous communications.*

Q.—U. I. E. writes: Will you kindly inform us of any process by which a finished positive can be made in five minutes from the time of exposure, which is to be 1-50 of a second, and the positive to be taken on some flexible substance?

If there is any such process, what will the apparatus cost or how can we secure a description of the process?

A.—We do not know of any such process. It is probable that the quickest time in which a negative can be made is more than five minutes.

Q.—J. C. writes: Prints that have been placed in an album partially wet, placed under weight, and from heat and moisture have become mildewed and yellow, is there a remedy or means by which they can be restored to anything like their former brilliancy or rather color? A reply would be appreciated if you will kindly take the trouble to do so.

A.—We fear there is no good process by which such prints can be restored. The best thing to do is to make some good negatives of the pictures as they now stand and have these negatives retouched to take out the mildew marks. Afterwards bleach the prints with a solution of mercury bichloride and wash thoroughly well, then blacken them with a weak

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solution of hyposulphite, and wash thoroughly again. By this means you may be able to eliminate the mildew marks, and obtain better prints to copy than those taken from the originals; at any rate the method may be useful and is worth trying.

Q.—C. St. J. McR. writes: Will you please tell me through the BULLETIN if a wooden tray lined with paraffine wax can be used for silvering bath?

A.—Yes, if the tray is dried thoroughly well in an oven before the paraffine is applied; the latter must be put on hot while the tray is hot and thick enough to completely cover the wood-work.

Q.—A. B. P. writes: What make of detective camera do you regard as the best? Do you regard Beck's lenses as the best in the market for detective cameras?

A.—We cannot undertake to recommend apparatus in these columns. Cameras and lenses depend very much upon the tastes, whims and oddities of the men that use them; but you may take it as an axiom that both cheap lenses and cheap cameras will not do the best work.

Q.—H. O. L. writes: Will you please let me know in next BULLETIN how I can keep hydroquinone from turning or discoloring, as I have lost a great deal of solution lately? I use a strong alkali.

A.—If our correspondent will send his name and address we will answer his question. We cannot break the rule given at the head of this column. Initials are not name and address.

Q.—F. F. S. writes: Please tell me through the columns of the BULLETIN where I can procure a prepared collodion emulsion suitable for lantern slide work. Also, if it is possible to procure pigmented tissue for carbon printing in this country.

A.—Write to our publishers; we believe they can supply both of these articles. Your note about spirit photographs to hand; the process you mention is the one generally used and works well.

Views Caught with the Drop Shutter.

THE firm of W. H. Walmsley & Co. having been dissolved by mutual agreement, Mr. W. H. Walmsley, the founder and senior member thereof, has, in conjunction with others, formed a limited corporation, under the title of W. H. Walmsley, Limited. The photographic department will be under the management of Mr. J. Milnor Walmsley, who for the past five years has been at the head of that branch in the house of W. H. Walmsley & Co. The new corporation have secured commodious quarters at 1022 Walnut street, Philadelphia, where they hope to see all old and many new friends.

THE MOSS ENGRAVING COMPANY send us a handsome pamphlet containing examples of their recent achievements in the line of photo-mechanical printing. It is truly wonderful to see the progress they have made during the last few years. These examples before us are some of the most beautiful work of the kind we have seen for a long time—soft, delicate and fitted to the finest forms of illustration.

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1889

WILSON'S PHOTOGRAPHIC MAGAZINE.

(FOR 25 YEARS THE PHILADELPHIA PHOTOGRAPHER.)

EDWARD L. WILSON,

Editor and Proprietor.

IN presenting my TWENTY-SIXTH PROSPECTUS, I ask the attention of all professional and amateur photographers, and of all who are interested in our wonderful Art, to a few points concerning the conduct of my magazine for 1889.

FIRST. Its local name will be changed to one which will be more in keeping with the wide growth of Photography. *The Philadelphia Photographer* will go out of existence, after twenty-five years of service, and WILSON'S PHOTOGRAPHIC MAGAZINE will take its place. There will be no change in editor, publisher, or owner, nor in the publication, except as to details.

SECOND. The issues will occur on the first and third Saturday of each month, as heretofore. Those of the first will be embellished by an albumen-paper print; those of the third will be embellished by a photo-gravure, photo-engraving, or photo-lithograph print.

SUBSCRIPTION PRICE. For the monthly edition (twelve numbers a year), $3.00 a year; for the semi-monthly edition (twenty-four numbers a year), $5.00 a year. Half-yearly or quarterly at the same rate. Thirty cents per copy. Foreign postage four cents per number extra.

Subscribers to the *monthly* edition should specify which issue they prefer.

Wilson's Photographic Magazine,

By this special arrangement, should be in the hands of *every* one interested in photography. It will not be published from sheer fancy, or for the sake of pushing the interest of any mercantile house. Its long experienced editor is *in earnest* in his purpose to make his magazine subserve the growth and advancement of all that pertains to the art he advocates, and he desires to help those who, like him, depend upon it for a livelihood, and to instruct and assist those who practice it for diversion, or employ it as an accessory help in their own business. The determination is to make it *the best possible* photographic magazine. If experience counts for anything, the balance will turn toward WILSON'S PHOTOGRAPHIC MAGAZINE, for its editor has *grown with the growth* of Photography, and has always kept his position alongside.

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FOR 1889

UNUSUAL PREPARATIONS are already advanced for informing and diverting our 1889 readers. Every number will be embellished by a rich frontispiece, and will include examples of fine portraiture, splendid character studies, landscape and art lesson selections.

New departments will be devoted to short, terse, practical hints, amounting, at the end of a year, to a splendid book. Some elaborately illustrated articles, both amusing and instructive, on posing and the use of accessories and backgrounds, will be started soon. A series of reminiscent articles in honor of the jubilee year (semi-centennial of our art), will begin in January. A complete manual on painting backgrounds and accessories, by the late veteran background-maker W. A. ASHE, of New York, will appear in chapters. It will be invaluable. The present variety of columns, under the care of the editor, will be continued, and it will be his constant effort to make his magazine maintain its long time position, as *"the best in the world,"* and the cheapest. A world-wide connection enables him to secure and give the choicest the photographic world affords. When you buy instruction secure experience with it.

A SPLENDID PRESENT for the employee from the employer, and for the husband from the wife, or from one amateur friend to another. There could not be a more acceptable holiday present than a subscription to WILSON'S PHOTOGRAPHIC MAGAZINE. A neat and tasteful presentation card will be supplied to donors, in order that something tangible may be sent to the favored friend. It will read thus:

> *To* .....
>
> *Your name has been placed upon the subscription books of* WILSON'S PHOTOGRAPHIC MAGAZINE *for the year 1889.*
>
> *Presented by*
>
> .....

The earnest co-operation is asked of all those who desire to find in the Photographic Magazine they subscribe for:

A. A useful and convenient compendium of current thought and practice, on the rapid and constant growth of the art.

B. A skillfully prepared, carefully filtered, judiciously boiled down, and attractive collection of all really valuable matter from all parts of the world—the well coated plate without any waste emulsion on the under side.

C. A thorough knowledge of what the great workers everywhere are thinking, saying, and doing—the whole world's photography focused.

D. An escape from all the narrow ruts of prejudice and self-interest, often disguised, which come from publications issued for private ends and not for the real help of those who pay for them; and

E. A satisfactory and well-paying investment.

☞ *Please send subscriptions in early that you may secure all the numbers.*

EDWARD L. WILSON,
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DON'T send to Chicago, St. Louis, or other points, when you can buy as cheap closer at home. Remember I carry a large and complete stock of everything needed in the business. All the leading Brands of Plates in stock. Our facilities for filling your orders promptly are unsurpassed. Try us.

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LANDSCAPE, PORTRAIT AND INSTANTANEOUS WORK.

Full and Comprehensive Instructions for Working in Each Package.

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One Year, - - - - -	$2 50
Six Months, - - - - -	1 25
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OFFICE OF THE EYE,

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OUR friends will recollect that about a year ago we invited all the photographers of the country to send us any criticisms or suggestions they might desire to make on this excellent Albumen Paper, that we might send them to the manufacturer, whose aim it was to make it *as perfect as it was possible to do.*

The Paper seems to have given such entire satisfaction to the most eminent photographers in the country that we believe but one suggestion was received, which was promptly forwarded to Dresden.

This is the most *satisfactory* evidence of the superiority of the Paper, and is of more value to guide photographers than if we were to advertise on our own account that it is "ahead of anything in the world."

We certainly believe that it is better than any other, in the *chemical preparation of the Albumen* and in the care with which the first quality is *selected.* It is very easy to make paper a few dollars less expensive to the ream by leaving in defective sheets, but it is *not really cheaper to the photographer.*

The next important point for the photographer to know is how he can be *sure* he gets the right paper in these days of counterfeiting brands. He will be sure in this respect by looking *through* the paper for the *water mark* N. P. A., *which cannot be counterfeited;* while a *brand,* as we said last year, can be put on "while you wait."

The *best is always the cheapest,* when you need it to *use;* though it may not be, if you merely wish it to *sell.*

Photographers will find that some parties will charge them the same price for *inferior papers* that they do for the N. P. A., and will try to persuade them that the other is "just as good." It *is* just as good—and better, too—for them to *sell,* because they make more profit on it; but the photographer who *uses* it will not find it so profitable as he who *sells.*

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LILLIPUT CAMERA

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WONDER OF THE DAY.

People marvel as to HOW we do it.



IT IS A FACT!!

WE SUPPLY A

HANDSOME SOLE LEATHER DETECTIVE CAMERA

—WITH—

6 Patent Double Holders;
Non-actinic Lamp;
108 First Quality Dry Plates, 2½ inches square;

FOR $25.

A Few Reasons why you should Buy a Lilliput.

Because of its compactness and beauty; its unlikeness in appearance to a Camera, yet being one with which you can photograph anything that could be done with any other Camera.

That you can make pictures with it unequaled by any other method; also you can finish at any time *one* or more negatives, and see precisely what results you are obtaining.

The Plates are INEXPENSIVE, EASILY HANDLED and MANIPULATED by any one.

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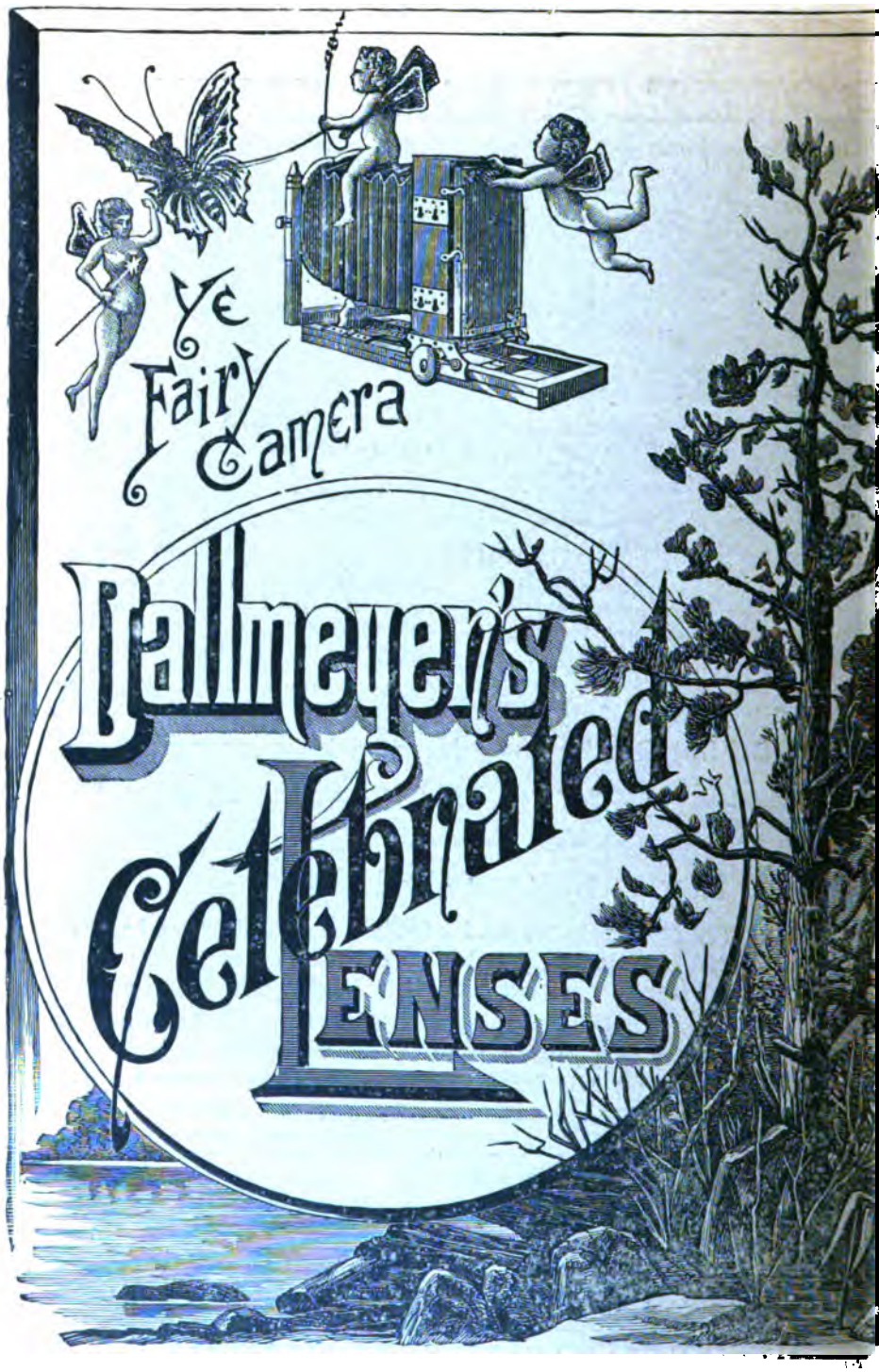
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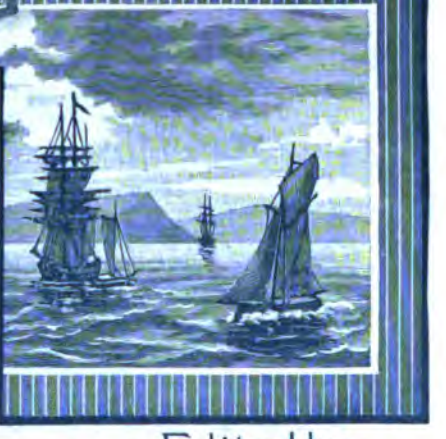
For the Amateur and the Professio

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Vol. 20. April 13, 1889. No. 7.

ANTHONY'S Photographic BULLETIN





Edited by
PROF. CHAS. F. CHANDLER, Ph.D. LL.D.
Prof. of Applied Chemistry in the School of Mines,
COLUMBIA COLLEGE, NEW YORK CITY.

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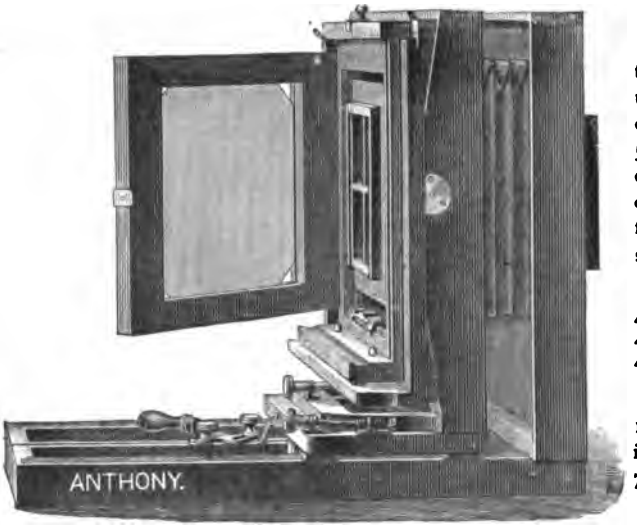
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CLIMAX CINCINNATI No. 43 B GEM CAMERA.

FITTED WITH THE "BENSTER" PLATE HOLDER.



For negatives or ferrotypes (admitting of picture 8 x 10 and under, two on 8 x 10, 7 x 10, or 5 x 7 with one lens) with carriage movement on our Patent Rollers, and fitted with the "Benster" Holder.

No.	Price.
43 B. Without swing..	$27 00
43 B. Single swing.. ..	30 00
43 B. Double swing....	34 50

When fitted with four 1-4 Gem Tubes on plate, it will admit of eight on 7 x 10, and four on 5 x 7.

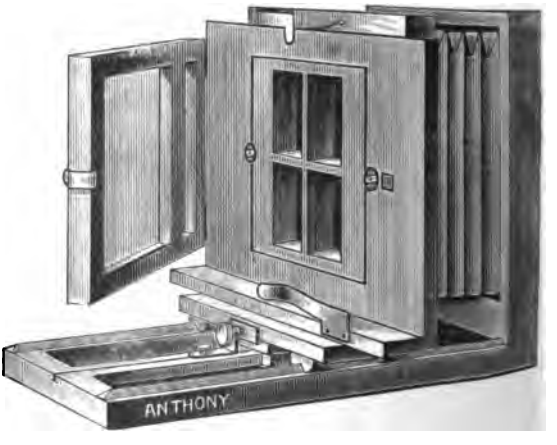
Without swing, fitted with four tubes on plate.....					$43 00
Single	"	"	"	"	46 00
Double	"	"	"	"	50 00

THE "CLIMAX" VICTORIA CAMERA.

For making 5 x 7, 4¼ x 5½, and 3¼ x 1¼ pictures, and reversible, and 4 or 8 on 5 x 7 plates with 4 Gem tubes. It is handsomely finished in mahogany, has rabbeted shield and kits. The camera has several improvements over anything heretofore offered to the trade.

PRICE.

Without Lenses, - - $15.00
With 4 ¼ Lenses on Plate, - - - - - 31.50



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STANLEY DRY PLATE.

The Plates now being made in our new Factory are giving most excellent satisfaction, and we earnestly recommend those who wish to use

THE BEST PLATE MADE

to give them a trial.

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FOR SALE BY ALL DEALERS AND BY

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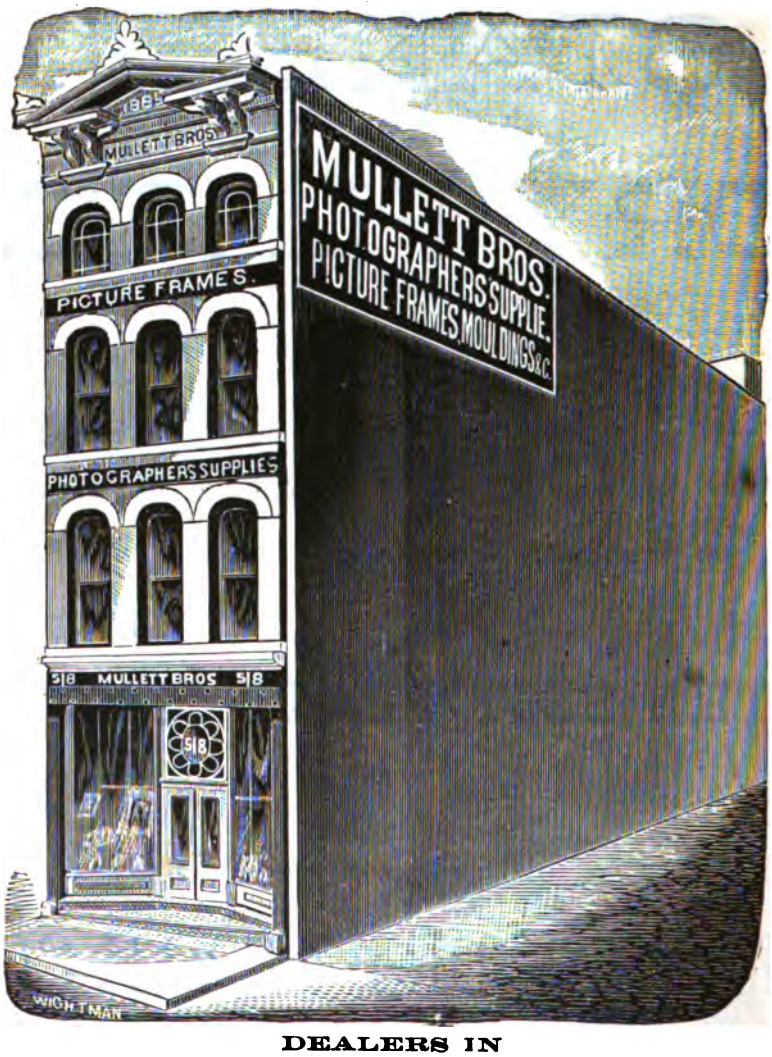
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MOLDINGS, ALBUMS, GLASS,

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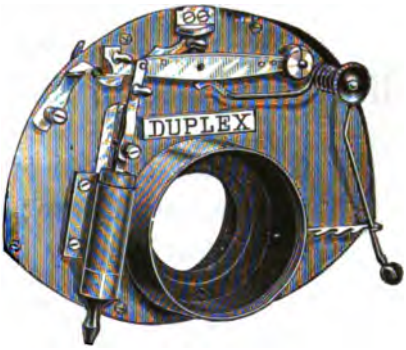
APPLIES any dilute liquid pigment by jet of air. Work is far more rapid than crayon; equally artistic. Adopted by hundreds of the best portrait artists in the United States. Gold Medal Franklin Institute; Special Medal American Institute.

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PROSCH RAPID,
DUPLEX STEREOSCOPIC,
DUPLEX DETECTIVE,
DUPLEX TRIPLE IMPROVED.



DUPLEX WITH SILENT TIME.

The Prosch Rapid is capable of making exposures so rapid as to test to the utmost the skill of the most expert operators to develop. It is only for instantaneous work, such as taking horses at most rapid gait; athletes running, jumping; divers, etc., etc. Although operating between the lenses it is entirely different from the Duplex. Made in two sizes: No. 1, 1-inch opening, price, $18; No. 2, 1¼-inch, $22.

The Duplex Stereoscopic fills perfectly the want of a time and instantaneous shutter for Stereoscopic work. It consists of two Duplex Shutters on one frame, operated by one lever and one release, and consequently gives two identical exposures. Made in two sizes: No. 1, ¾-inch opening, $18; No. 2, ⅞-inch opening, $19.50. Lenses are arranged at 3¼ inches from centers; but this will be increased, if ordered, up to 3¾ inches for $1 additional. Rotary Stops, $2; Flange Collars, when required, 75 cents. Silent time attachment, $1.50; combined with slow instantaneous, $2.

The Duplex Detective is a reliable, compact and efficient Shutter for Detective Cameras, which can be used for both time and instantaneous work. Release for instantaneous is by a push trip (pneumatic if desired). Time exposure mechanism is same as silent self-setting time to regular Duplex Shutters, by which instantaneous exposures can also be made by pressure to pneumatic bulb. Price, including fitting to Camera and Rotary Stops, $15.

THE EVER POPULAR DUPLEX SHUTTER still retains its lead of all others, whether of home or foreign production. The Rotary Stop is considered by an army of users an indispensable adjunct to the shutter, likewise the silent, self-acting time, and slow instantaneous attachment, which operates shutter by direct pressure of air through pneumatic device.

DUPLEX ENLARGED REVISED LIST.

Numbers.....	∞	0	0A	1	1A	2	2A	3	3A	4	5	6	7
Openings, inch...	⅝	¾	1	1⅛	1⅜	1⅝	1⅞	1⅞	2	2⅛	2½	3	3½
Price.....	$11.50	$12	$12.50	$13	$13.50	$14	14.50	$16	$19*	$20*	$22*	$24*	$27*

* Including silent time attachment.

Rotary Stops up to No. 1, $1.50; above that, $2. We do not make Rotary Stops for sizes larger than No. 2A, except by special agreement. Silent time attachment same prices as Rotary Stops.

When Flange Collars are required, as on Ross and other lenses similarly mounted, 50 cents extra. Shutters can be furnished for most standard lenses, fitted ready for use, but it is to customer's interest to forward his lens tube with order, otherwise perfect fit is not guaranteed. These shutters are owned and manufactured solely by the Prosch Manufacturing Co. None genuine without our stamp. Circulars containing full information forwarded on application.

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LILLIPUT CAMERA

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People marvel as to HOW we do it.



IT IS A FACT!!

WE SUPPLY A

HANDSOME SOLE LEATHER DETECTIVE CAMERA

—WITH—

6 Patent Double Holders;
Non-actinic Lamp;
108 First Quality Dry Plates, 2½ inches square;

FOR $25.

A Few Reasons why you should Buy a Lilliput.

Because of its compactness and beauty; its unlikeness in appearance to a Camera, yet being one with which you can photograph anything that could be done with any other Camera.

That you can make pictures with it unequaled by any other method; also you can finish at any time *one* or more negatives, and see precisely what results you are obtaining.

The Plates are INEXPENSIVE, EASILY HANDLED and MANIPULATED by any one.

It can be used for either INSTANTANEOUS or TIME exposures.

These Negatives can be Enlarged to any Size Required.

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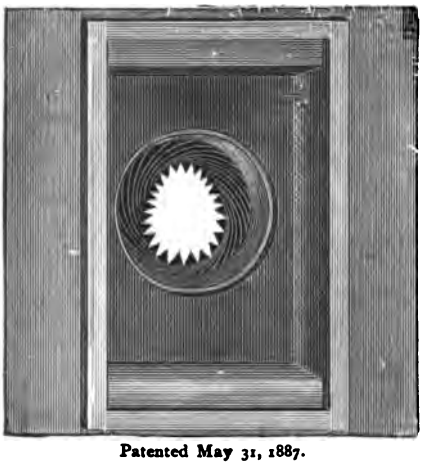
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THE NEW MAGIC VIGNETTER,

FOR

Producing the Black Background or Ebony Photographs.

Hundreds of these Vignetters are now in use, GIVING UNIVERSAL SATISFACTION. They can be easily adjusted to any camera, and require no more trouble or expense than making plain photographs. Every progressive photographer should have one. Its work will attract attention in your case and increase your business.

Every one guaranteed. Price, each, $8. Sample photographs made with it sent on application.

Kuhn's Sensitized Paper Stretcher and Dryer.

Patented April 13, 1886.



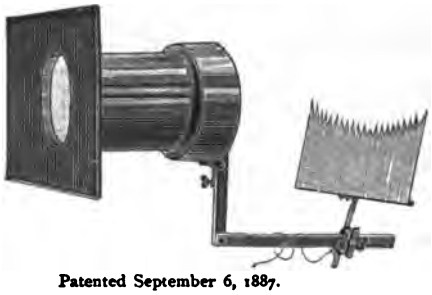
Paper dried with it lays perfectly flat, and therefore better prints can be obtained.

You can also cut your paper either lengthwise or crosswise of the sheet, as it neither stretches nor shrinks afterwards.

In addition, it is very desirable for handling Bromide Paper.

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18 x 22 size, each, - -	$1 50
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Improved Vignetting Attachment

FOR VIGNETTING THE NEGATIVE.

Light, Strong and Durable.

It is perfectly reliable and quickly adjusted to any lens by the means of a thumb-screw. It can be raised or lowered at will to any position desired by the operator, by simply pulling a cord, without leaving his position behind the camera. Price, each, $3.50.

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For Portraits, Landscapes and Drop Shutter work. **Weight and Space reduced to a minimum.** Fourteen dozen Films weigh less than one dozen Glass Plates. They are developed in the same manner as Dry Plates. They reduce halation. They can be printed from either side of film.

ANTHONY'S CLIMAX NEGATIVE FILMS are made upon a substance of recent discovery, which is admirably adapted to the manufacture of a **Perfect Negative Film,** combining **Transparency, Strength** and **Toughness of Composition,** which renders them capable of being made so thin as almost to eliminate the question of weight and bulk in carrying. They are made with a **fine mat surface,** which **reduces halation,** and are **perfectly impervious to water.** Can be sent by mail without danger of breakage.

PRICES PER DOZEN.

3¼ x 4¼,	$0 65	5 x 7,	$1 65
4 x 5,	95	5½ x 7,	1 75
4¼ x 5½,	1 12	5 x 8,	1 80
4½ x 6½,	1 30	6½ x 8½,	2 50
4¾ x 6½,	1 40	8 x 10,	3 60

Postage extra.

A TRIAL OF THESE FILMS WILL DEMONSTRATE THEIR PRACTICAL VALUE.

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AT THE LOWEST MARKET PRICES.

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(PATENT APPLIED FOR.)

THIS new and unique lamp renders it possible to make fully exposed negatives at night with results equal to and not distinguishable from daylight pictures. Reference to the cut shows its simplicity and easy method of using. To use it the pipe is charged with powdered metallic magnesium, a small quantity of alcohol poured on the wicks, which when lighted give a very large flame (the width of the back and several inches higher), pressure on the bulb fires the magnesium through the blaze, the result being a flash of tremendous size and actinic power. Then the back, which is hinged, is shut down, at once extinguishing the blazing alcohol.



There is no smoke, and there being no reservoir for alcohol, there is absolutely no danger of explosion.

The results attainable with this lamp are simply astonishing; it will illuminate the largest sitting-rooms, so that the smallest details at furthest end of room are well defined on negative. The flash being so large and well diffused there are no sharp shadows; for the same reason the light is not so trying on the eyes as when the flash proceeds from a point, as with the explosive compounds.

FULL INSTRUCTIONS INCLOSED WITH LAMP.

Price complete, including rubber tube and bulb, wicks, etc., - - - $3 00

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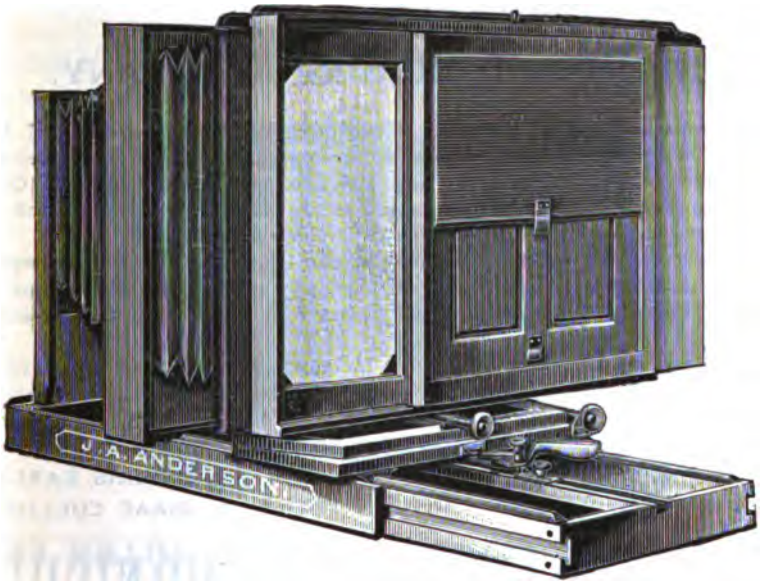
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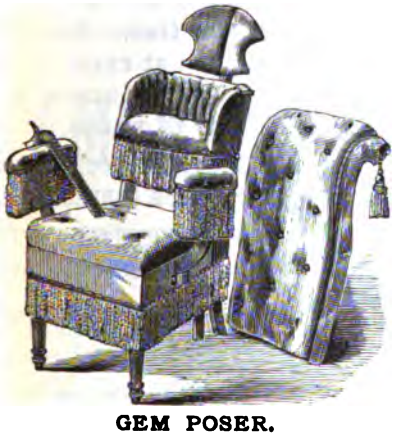
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Philadelphia, March 15, 1889.

We, the undersigned, formerly partners in the late firm of W. H. Walmsley & Co., will continue business as heretofore at the long-established stand, 1016 Chestnut Street, under the style and firm name of

MORRIS EARLE & COMPANY.

Your especial attention we invite to our large stock of Messrs. R. & J. Beck's celebrated Microscopic Instruments and "Autograph" Lenses and Cameras, and a well-assorted line of Spectacles and Eye Glasses, Opera and Field Glasses, Telescopes, Thermometers, Barometers, Lantern Slides, as well as a full Stock of Photographic materials and Photo-Micrographic Cameras.

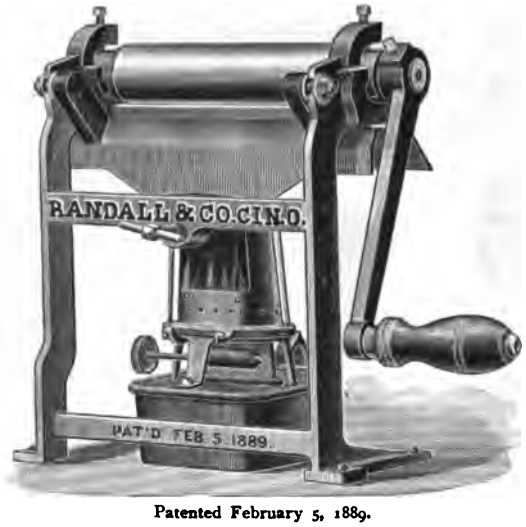
Having employed skilled workmen in our laboratories and workshops and spectacles departments, together with capable and experienced clerks in our sales-rooms, we are prepared to execute all orders with greater promptness and dispatch.

All orders for special importations, including those Free of Duty, required for Colleges, Schools and Public Institutions, will receive immediate attention.

On application, we will be pleased to send our illustrated price-lists and catalogues, and reply to all inquiries submitted to us of a scientific character appertaining to our business.

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LOW PRICE. HIGH QUALITY.

Heated in five minutes by Oil or Gas. Smoke discharged at ends. Adjusted by one screw to thickness of photo.

NICKEL-PLATED ROLL AND BURNISHING SURFACE.

SIMPLE, EFFICIENT AND ECONOMICAL.

Write for Circular and mention this Journal.

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Price,	6½-inch,	with Oil or Gas Heater,	boxed,	- -	$8 00
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MORE GOOD WORDS FOR THE SUTER LENS.

HAMILTON, O., October 12, 1888.

ALLEN BROTHERS, Detroit, Mich.:

DEAR SIRS,—I have for the past three years used a THREE B SUTER Lens for out-door work, and FIVE A for interior work, and, so far as work is concerned, I would not exchange a Suter Lens for any other kind, regardless of price.

Very respectfully, (Signed) I. M. BRANDTEL.

CIRCLEVILLE, O., October 5, 1888.

ALLEN BROTHERS, Detroit, Mich.:

GENTLEMEN,—The No. 6 B SUTER LENS which we ordered of you about one year ago has proved worthy of all the praise we can give it. We have made cabinets of babies in one-quarter of a second, and 14 x 17-groups in from twelve to sixteen seconds—well stopped down, all clear and crisp—as good, we think, as any lens in use, if not better; and for out-door viewing and grouping it is A No. 1. The more you can sell the more good you will do for photography. We expect to order a C Lens in a few days.

Yours, etc., (Signed) REED & BOCK.

ALLEN BROTHERS,
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FAMOUS LENSES.

The PORTRAIT, EXTRA RAPID, RAPID and WIDE ANGLE EURYSCOPES, and NEW SINGLE LANDSCAPE LENSES; also the ever popular

DARLOT LENSES.

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IMPROVED RELIABLE BROMIDE PAPER.

(PATENTED.)

FOR CONTACT PRINTING AND ENLARGEMENTS.

After many and costly experiments we have succeeded in producing a Bromide Paper which far excels any heretofore made, and which we are enabled to make perfectly uniform.

This paper we now introduce to the trade under the name of Improved Reliable Bromide Paper, feeling assured it meets the requirement for an absolutely reliable article.

This paper we are obliged to sell at a rather higher price than the paper we have hitherto made; but as it will be of superior quality, and also has our guarantee, it will be well worth the difference to the purchaser.

The Improved Reliable Bromide Paper will be made both in quick (manilla color wrappers) for use with Cooper Enlarging Lantern, and in slow (blue wrappers) for day-light.

PRICES.

CUT SHEETS.

SIZE.	PER DOZ.	SIZE.	PER DOZ.
3¼ x 4¼	$0 25	11 x 14	$3 00
4 x 5	40	12 x 15	3 35
4¼ x 5¼	50	14 x 17	4 50
4½ x 6½	55	16 x 20	6 00
4¾ x 6½	60	17 x 20	6 40
5 x 7	65	18 x 22	7 50
5 x 7½	70	20 x 24	9 00
5 x 8	75	22 x 27	11 25
6½ x 8½	1 00	24 x 30	13 50
8 x 10	1 50	25 x 30	14 00
10 x 12	2 25	24 x 36	16 00
10 x 14	2 65	30 x 40	22 50

IN ROLLS (10 Yards).

	PER YARD.		PER YARD.
10 inches wide	$0 56	20 inches wide	$1 12
11 "	62	22 "	1 24
12 "	68	24 "	1 35
14 "	79	25 "	1 40
16 "	90	30 "	1 68
18 "	1 00	31 "	1 74

EXTRA LARGE SIZES.

	PER YARD.		PER YARD.
33 inches wide	$1 85	37 inches wide	$2 10
35 "	1 96	41 "	2 30

These sizes are larger than anything that has ever before been attempted. ANTHONY'S PATENT RELIABLE PAPER is coated by the most perfect and the largest machinery ever designed for the purpose, and is warranted uniform in quality and capable of producing the most beautiful results photographically.

The grades are H. G., heavy grained; H. S., heavy smooth; L. S., light smooth, all at one price.

WE DO NOT MAKE ENLARGEMENTS FOR THE TRADE.

NOTICE.—Our Bromide Paper is made under U. S. Letters Patent to T. C. Roche, dated February 8, 1881, No. 241,070. We have commenced a test suit in the United States Circuit Court for the Southern District of New York, against the Eastman Dry Plate and Film Co., George Eastman, Treasurer, and the Scovill Mfg. Co., in which we claim that the paper manufactured by the Eastman Co. is an infringement of our patent, and the Scovill Mfg. Co. are sued as sellers of it. This suit we shall press as vigorously as possible. In the meantime we deem it our duty to ourselves and to the trade to caution all persons against infringing our patent, as dealers are liable equally with the manufacturers for both damages and profits.

E. & H. T. ANTHONY & CO.

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The New Boston Reversible-Back Cameras.

Combining the advantages of other makes with the latest improvements. The finest material and finish. Light and rigid. Superior Swing-Back Movement.

PRICE LIST.

5 x 7.	Single Swing	$28.	
5 x 8.	" "	30.	(Interchangeable Backs.)
6½ x 8½	" "	30.	
8 x 10.	" "	34.	

Double Swing supplied when desired at $2 additional.

THE HAWK-EYE

DETECTIVE and Combination Camera.

Price, $15. Size of Pictures 4 x 5 inches.



AS A DETECTIVE CAMERA.—The HAWK-EYE has the quickest adjustment of speed and focus for instantaneous pictures of moving objects under varying conditions.

AS A VIEW CAMERA.—The HAWK-EYE may be set up on a tripod for time exposures. It is provided with interior ground glass, detachable cover to back, and screw pinion movement controlling the bellows. No focusing cloth is required.

AS A MAGAZINE CAMERA.—The HAWK-EYE will be supplied with an attachment containing a coil of sensitized film sufficient for **100 exposures** without reloading, for $10 extra, or $25; placing **Photography within the reach of all,** it being only necessary to wind a fresh portion of the film into position for each picture, *pressing a catch* making the exposure. The coil attachment may be mailed to the factory or photo goods dealer, to have the pictures developed and printed, or the finishing may be done by the amateur, as desired. The portion of the coil of film which has been exposed may be at any time removed, without taking apart the camera proper. Plate holders or coil attachment, glass plates or films may be used in the same camera. Send for illustrated pamphlet with sample photograph, or inquire of your dealer. **For sale by the leading dealers.**

The BOSTON CAMERA CO., Manufacturers, 36 India St., Boston, Mass.

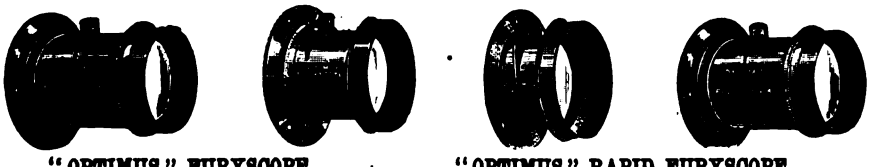
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"OPTIMUS" RAPID EURYSCOPE.

5 x 4	7 x 5	9 x 7	10 x 8
63|-	94|6	126|-	220|-

"OPTIMUS" EURYSCOPE.

"Working as it does with such a large aperture (f/6 approx.), it serves as a portrait and group lens, as well as a landscape and copying objective. There is no doubt of its proving a most useful lens."—J. TRAILL TAYLOR, *British Journal of Photography.*

"We are pleased to find upon trial that the lens ["Optimus" Rapid Rectilinear] sent for review is really an EXCELLENT INSTRUMENT."—*Photographic News.*

"PORTRAIT LENS.—The 'Optimus' Lenses are MODERATE in PRICE, and yield most excellent results.—*Amateur Photographer.*

"OPTIMUS" RAPID RECTILINEAR.

⅛	¼	½	¾	1	1½	2	3	4
33|-	45|-	49|6	64|-	82|6	127|6	142|6	180|-	225|-

"OPTIMUS" WIDE ANGLE SYMMETRICAL.

¼	½	¾	1	2	3	4
89|-	52|6	82|6	127|6	142|6	180|-	225|-

"OPTIMUS" QUICK ACTING PORTRAIT.

Diam.....	2 inches.	2¾ inches.	3½ inches.
Price.....	90|-	120|-	180|-
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99 HATTON GARDEN, LONDON.

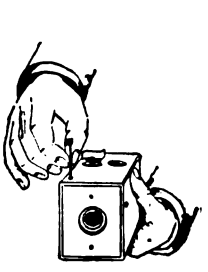
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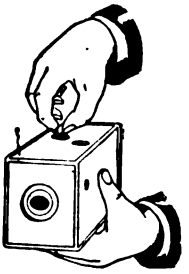
THE KODAK CAMERA.

Silver Medal at Minneapolis Convention P. A. of A. for most important invention of the year.

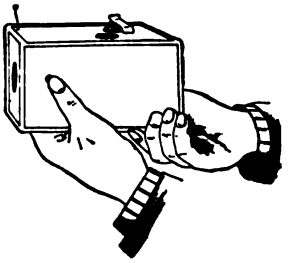
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1. *Pull the Cord.*



2. *Turn the Key.*



3. *Press the Button.*

And so on for 100 Pictures.

ANYBODY CAN USE IT.

Size of Camera, 3¼ x 3¾ x 6½ inches.

Weight, 1 lb. 10 oz.

Size of Picture, 2⅝ in. diameter.

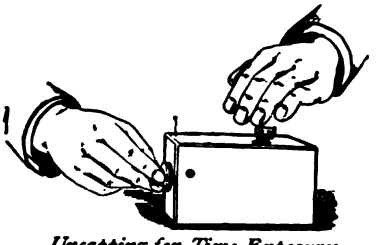
PRICE, - - - $25.00

Price includes hand-sewed sole leather Carrying Case, with shoulder strap and film for 100 exposures.

Amateurs can finish their own negatives or send the roll of exposed films to the factory by mail to have them developed and printed.

Price for developing, printing and mounting 100 Pictures, including spool 100 films for reloading Camera, - - - - $10 00

Spool for reloading only, - - - 2 00



Uncapping for Time Exposures.



THE EASTMAN DRY PLATE AND FILM CO.,

15 Oxford Street, London. | **ROCHESTER N. Y.**

Send for Descriptive Circulars.

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ANTHONY'S
Photographic Bulletin.

Prof. CHARLES F. CHANDLER, Ph.D., LL.D., *Editor.*
ARTHUR H. ELLIOTT, Ph.D., F.C.S., *Associate Editor.*

APRIL 13, 1889. Vol. XX.—No. 7.

RECENT PHOTOGRAPHIC WORK AT HARVARD OBSERVATORY.

THERE is probably no more interesting example of the application of photography to scientific purposes than the beautiful researches developed at Harvard Observatory under the direction of the Brothers Pickering. Enthusiastic astronomers and expert photographers at the same time, with the resources of a great university and a number of valuable endowments to facilitate their work, they are accomplishing results that are the admiration of the civilized world.

Through the kindness of Professor E. C. Pickering we have been favored with two valuable reports of some of the more recent work done at Harvard Observatory. One of these is upon the discovery of new nebulæ by photography, and the other gives the results of the photographic determination of the brightness of stars.

In the report upon new nebulæ the region of the heavens selected for the research was in the neighborhood of which Orion forms the centre, and the Bache telescope, having a photographic doublet 8 inches aperture and 44 inches focus, was used for the work. The exposures varied from sixty-nine to one hundred and eighty-seven minutes, and the plates were backed with a coating of shellac and lampblack to prevent reflections from the rear surfaces of them. They were very carefully compared by Mrs. M. Fleming, one of Professor Pickering's corps of lady assistants. As a result of very careful comparisons, there have been discovered twelve new nebulæ in the region around Orion, which embraced an area of about four one-thousandths of the entire sky. In the same proportion, and if the rest of the heavens yield like results, it is expected that at least four or five thousand new nebulæ may be discovered by the photographic method; and it is probable that even a greater number than this will be discovered, since the neighborhood of Orion has been the favorite field of the astronomer. The southern sky has been somewhat neglected, and other regions bid fair to add much to our knowledge of faint heavenly objects, when photography assists the human eye. The telescope employed covers so large a field of celestial space that only four hundred plates are needed to embrace the whole area. An increase in the sensitiveness of plates, which is always possible, may add still more interesting results to those already obtained.

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During this work around the great Nebula of Orion, photographs have been taken of it, which Professor Pickering regards as "nearly equal to the best drawings yet made, both in the extent and amount of detail shown."

Think of the labor saved by using the photographic dry plate!

The determination of the brightness of stars by photography was begun at Harvard Observatory in 1885, and the report before us is a continuation of that work. The telescope used consisted of a Voigtländer photographic doublet of 8 inches aperture, reground by Alvan Clark & Sons; the focal length being 44 inches. The dry plates used were 8 x 10 inches and covered an area about 10 x 12 degrees. The intensity of the stellar light may be measured by a photographic band, dark at one end and gradually fading to light at the other; but other methods are also used for comparison, such as the light taken from twenty stars used as standards. By methods of this character the brighteness of stars within one degree of the North Pole, and which are brighter than the fifteenth magnitude inclusive, have been determined. These determinations are given in a catalogue embracing one thousand and nine "Close Polar Stars." The Pleiades was subjected to a similar investigation and four hundred and twenty stars catalogued. Finally the work was carried on in the equatorial region, and here the catalogue gives the figures of the brightness of eleven hundred and thirty-one stars.

The amount of labor in these researches is enormous, even when photography is used to assist the eye and mind of man. Without photography the work would take ages of patient labor and then not be as faithfully recorded as it is on the molecules of our good friend silver bromide in his bed of gelatine. We tender our best thanks to Professor Pickering for his kindness in giving us the pleasure of reading his handsome report. It is a monument to American photographic research.

EDITORIAL NOTES.

From Professor W. K. Burton, at Tokio, Japan, we have just received the first number of the *Sashin Shimpo*, or Japanese *Photographic News*, which is devoted exclusively to photography. We have tried to make out the various articles and after several efforts have concluded that one of our Japanese friends will probably make a better translation than any we could evolve. We wish it every success.

Secretary Gentilé, of the Photographic Society of Chicago, writes us that their exhibition will be held from May 15th to May 25th next. Those of our friends that are located near Chicago will find it profitable to visit this display of pictures and apparatus.

From Stockholm, Sweden, we have received the "Fotografisk Tidskrift," edited by Albin Roosval. It is published in the interest of both professional and amateur photographers, and is the organ of the Swedish Amateur Photographic Society.

The New York Camera Club, 314 Fifth avenue, will hold meetings every Friday evening in April, when the following subjects will be submitted to the members: "Precise Photography," Lieut. C. L. Burns; "Demonstration of Collodion Emulsion Making," Mr. H. J. Newton; "Gaedicke's New System of Dark Room Illumination," Dr. Piffard; "Life Through a Detective Camera, illustrated with the Stereopticon," Mr. Alexander Black.

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From Mr. J. A. French, of Keene, N. H., we have received a handsome little calendar, about the size of a cabinet card, which contains some gems of New Hampshire views reduced to form a very pretty border around the calendar. Judging from the reductions we cannot help thinking the originals must be excellent examples of photographic art work.

Professor S. W. Burnham sends us a handsome series of views of the country around the Observatory of the Great Lick Telescope. We hope at an early day to reproduce some of these as illustrations for the Bulletin. In the meantime we tender the Professor our best thanks for his kindness.

The "International Annual" is now well advanced for 1889. This year it is to be out by June 1st promptly, and Professor Elliott and Mr. W. Jerome Harrison promise us a rich store of photographic lore and a handsome series of illustrations. Papers from all parts of the civilized world are ready, and everybody seems to be willing to lend a helping hand in the good work.

We are indebted to the Committee of Arrangements of the Joint Exhibition at Philadelphia for tickets to the Academy of Fine Arts. We hope to see this collection of pictures, and tell our readers of the impressions we obtain. There is no doubt it will surpass anything of the kind hitherto attempted.

From Mr. W. Reeves, of Norwich, Conn., we have received two very fine interior views taken with his magnesium flash-light. One is a 6½ x 8½ group of children which is an excellent piece of work, and the other is an 8 x 10 picture of a handsome parlor. Both were taken (he says) with a No. 3 Wide-angle Aristoscope Lens, and nothing could be sharper, nor could the plates be better covered with detail than in these two pictures. The lighting also appears excellent.

[*By our Special Correspondent.*]

ENGLISH NOTES.

How lantern work has increased during the winter just passed! Everybody seems to have been making lantern slides and giving exhibitions. At this the plate makers have rejoiced greatly, for the manufacture of lantern plates has found occupation for their hands during what was previously the "dull season" of the year. One large firm (Fry's) gives annually a series of prizes for pictures produced on its plates; I am told that the effect has been to increase its output four-fold. Then the lantern now enters largely into politics! The Radicals are using it to illustrate a series of lectures on the Irish question, and pictures of the "evictions" are thrown nightly on the screen. It is also largely used by night as a method of advertising; a large sheet is fixed half-way up a house, or theatre, etc., and the light is thrown on it from the other side of the street; or sometimes a window frame is taken out and a wetted sheet fixed in its place, the lantern being placed in the room behind.

With the great increase in the number of users, there has naturally been an increase in the number of accidents. When an oil lantern topples over and a stream of burning paraffine meanders along the floor of a darkened room, it is

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unpleasant, to say the least of it. But an explosion of the "mixed gases"—the hydrogen and oxygen used in producing the lime-light—is much worse. I have reason to believe that such accidents are more frequent than is generally supposed; but that many are "kept quiet," and never get into the papers. A few weeks ago a shock-headed boy introduced himself into my laboratory (which adjoins a public lecture hall), carrying a large half filled gas bag in his hand, and uttered the request, "Please, sir, will you fill this bag up with *gas* for Mr. Jones?" As it happened my assistants were absent and I was going out and could not comply with the request. My belief is that the shock-headed boy—full of that "zeal" which Talleyrand so earnestly deprecated—filled up the bag (which of course contained *oxygen*) out of the nearest *coal gas* burner, and took it back in triumph to his master. Anyhow, I was alarmed that evening by a fearful report from the direction of the hall, followed by loud shrieks. Running over, I found that lights had been obtained (most fortunately the large audience had not made the mad rush for the doors which so frequently takes place), and I saw that the gas-bags had been blown to tatters (the remnants of one bag hung on a gas-pipe near the roof of the hall), and that a couple of 28-pound iron weights had been thrown right over the heads of the people and had miraculously fallen in a corner without hurting anybody. And except the caretaker of the hall, who was standing in a gallery, and who received a slight contusion from a splinter of one of the pressure boards, nobody *was* hurt. After which we all (I hope) went home and said our prayers. *Moral.*—Have lock-taps on your gas bags, so that no one can interfere with them; have them boldly lettered with the names of the gases they are to contain; and *see to their filling yourself.*

The steel cylinders filled with compressed gases which are now largely coming into use I must confess I do not like. They have already claimed one victim in the person of Mr. Bewley, of Dublin; but it must be owned that his death was entirely due to his own act. His firm had taken up the manufacture of these compressed gases; and by some mistake, first oxygen and then hydrogen had been pressed *into the same wire cylinder.* Mr. Bewley appears to have been most rashly "experimenting" with the mixture, when it blew up, shattered the cylinder, and killed him instantaneously.

Probably never before have so many public exhibitions of photographs been held as during the past winter, and it is gratifying to know that all have been well attended and have paid their way. From the Liverpool exhibition there was a surplus of over $1,000, which has been devoted by the local society to the securing and furnishing of a good set of club rooms.

It appears to me that our conventions, or conferences, or leading societies, ought to draw up sets of rules and regulations which should be binding on, or at all events might form a model for, all photographic exhibitions. The judges (if medals, prizes, etc., are awarded) ought certainly to be chosen from *outside* the locality in which the exhibition is held; and they ought *all* to be men who have themselves "won their spurs" by previous successes in similar competitions. It is said that the "art critics" are the men who have *failed* as painters. Now, we do not want similar persons—nor even "good-natured nobodies"—to judge our photographs. It is not at all a bad plan to let one prize be given by the popular vote, giving every one who enters the exhibition a voting ticket, and requiring him to write on it the number of the picture he likes best, and then to place it in a box. I remember this plan being adopted, with

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great success, at one of the best photo exhibitions ever held, at Edinburgh, some twenty years ago.

Messrs. Sampson Low & Co. have just sent me for review one of the most interesting works ever published in connection with photography. It is Dr. P. H. Emerson's "Naturalistic Photography," an octavo of 307 pages, published at the very low price of five shillings. It is dedicated to the great French artist, "Adam Salomon, sculptor and photographer," for whose work in portraiture, as for that of the late Mrs. Julia Cameron (of whom I gave some account in the "International Annual") and also Rejlander's, Dr. Emerson entertains a very high opinion. Every page of this book teems with good things. Let me give a sample: "We once asked an eminent landscape painter how many negatives he would be content to produce in a year if he were a photographer. His answer was, 'Twenty first-rate things would be good,' and that meant working all the year round." We commend this saying to those possessors of roll-holders who sometimes reel off their forty-eight exposures in one day! For artistic purposes Dr. Emerson recommends, above all others, Dallmeyer's new long-focus rectilinear landscape lens, and we can join him in strongly approving of the roundness and softness of the images produced by this lens when used with full aperture.

The platinotype printing process increases daily in favor, and it seems almost useless to send in silver prints to an exhibition; the platinos always carry the day.

The exhibition, which is to open at the Crystal Palace on March 19th, bids fair to be one of the biggest things ever done in photography in this country. Every foot of space has already been taken up, and the show of apparatus especially promises to be of great variety and extent. As the Annual Conference of the Camera Club will be held in London while the exhibition is open, I shall make a study of both events for the benefit of your readers.

All workers in photography ought now to be making practical preparations for the coming season. Every article of apparatus ought to be thoroughly overhauled, dusted, repaired, oiled if necessary, and above all tested to see that it is in good working order. "Spring cleaning" is a great institution in England, and it is one which we should extend to our dark rooms, renovating them thoroughly and removing every particle of dust and dirt. The bottles of chemicals should be filled up, and a new stock of plates ordered (there are no plates like those made in cold weather). But I hear you cry, "Physician, heal thyself!" and I take your advice; I lay down my pen and take off my coat, so no more at present from

TALBOT ARCHER.

THE NEW YORK CAMERA CLUB.

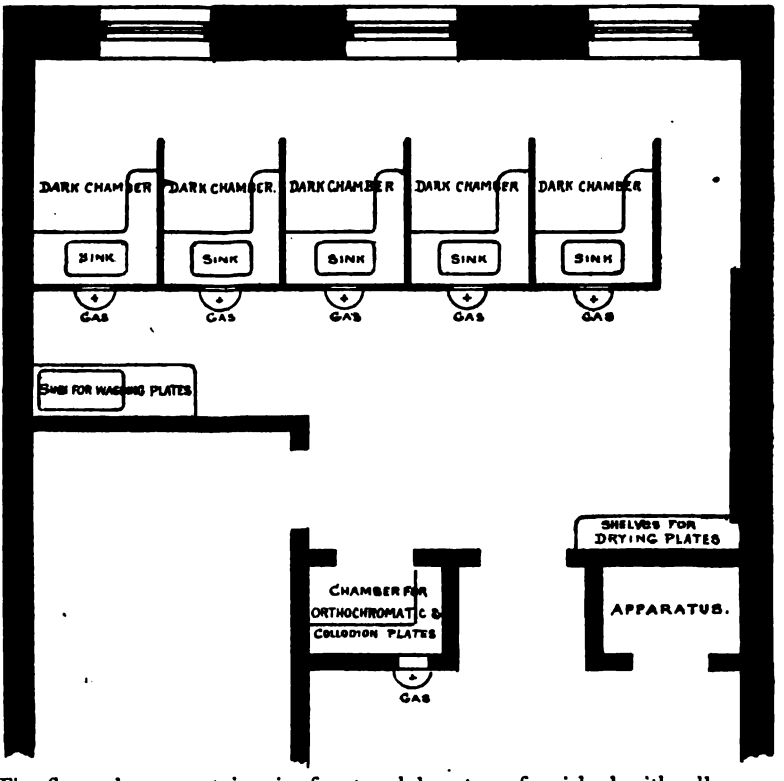
THE organization of this club marks an era in amateur photography in this city. It originated in the desire on the part of some of the members of the Society of Amateur Photographers of New York to secure for this city a society or club the membership of which should consist of amateurs only.

It was further desired to provide better facilities for mutual improvement, original investigation and advanced work than were then accessible. These ideas culminated at a meeting of a few gentlemen in November last, when it was decided to attempt to carry out these purposes by the formation of the New York Camera Club. The entrance fee was placed at $10 (since increased to $25), and

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annual dues were fixed at $40, except for non-resident members and ladies, whose annual dues are $20. The club became incorporated in December, and immediately took steps to secure eligible quarters for its purposes. These were found at No. 314 Fifth avenue, the two upper floors of which building were leased for a term of years.

On Wednesday evening, March 13th, the rooms were formally opened to members and their friends, and Mr. George Marshall Allen described a trip through the Yosemite, illustrated with very successful collodion slides. After the entertainment an opportunity was offered to inspect the quarters. The lower floor contains a general meeting hall in front, about 42 feet in length. In the rear and separated by portières is a smaller sitting-room and library, adjoining which is a large toilet-room with basin, mirrors, hat and coat hooks, etc.



The floor above contains in front a laboratory furnished with all necessary apparatus and utensils for preparing developers, preparing and developing platinum paper, etc., together with apparatus for making lantern slides and bromide enlargements. By the side of this room is a smaller one for printing and toning.

The middle room of this floor is the portrait gallery, with large skylight, while in the rear we find the dark room. This most important adjunct of a camera club is somewhat peculiar in construction. It is entered from the gallery by an open doorway, and the visitor is greeted by five brightly burning gas-jets, arranged in a line between the visitor and a partition, which extends nearly across the room. At the end of this partition is found the entrance to a passage which leads backwards and opens into another, which communicates with five develop-

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ing cabinets, or small separate dark rooms. This description will be best understood by reference to the diagram on preceding page.

The small dark rooms are lighted by a window facing the sink, and which is illuminated through colored glass by one of the gas jets marked on the diagram. In the day-time the passages and dark rooms are lighted in the rear by three large windows, giving an abundance of non-actinic light, and at night by argand burners with ruby chimneys.

Each of the dark rooms is furnished with graduates, trays and three sets of developers, for iron, pyro and hydroquinone development.

In addition to these there is another small dark room for the preparation of ortho-chromatic plates, collodion emulsions, etc.

On the whole, the arrangements of dark rooms and laboratories and the facilities for all sorts of photographic work are the most complete and satisfactory that we have yet seen.

The Club has received from one of its members the present of a handsome enlarging and reducing camera, made by Messrs. E. & H. T. Anthony & Co., from another member a fine Scovill Gallery Camera, from another an optical lantern, and from another a copying lens.

The Club at present has between sixty and seventy members, with prospect of a rapid increase. We wish it every success.

A MONOCHROMATIC LAMP FOR DARK ROOMS.

By Captain Eugene Himly, *Berlin.*

Mr. J. Gädicke, of Berlin, has invented and brought into trade a very useful light, which manufacturers of dry plates especially can hail with joy. It is not pleasant to work all day in a dark room which is lighted by red light, and it has been even reported that in course of time people got nervous by it. Mr. Gädicke found sodium light very useful for this, but it had to be filtered through a medium which cut off the ultra violet and blue rays of the spectrum. After many trials a glass was found which is colored yellow in the mass by aid of iron, and if this light was filtered through it, it becomes non-actinic. It is recommended to use a common Bunsen gas-burner (or Auer gas-burner), over which is fitted a small ring of platinum wire. This ring receives a small wick of asbestos sheeting about one-fourth of an inch high, fitted into the platinum, moistened with a little water and then turned around in a certain powder which contains a sodium salt. Common salt would not last long, but this mixture holds out all day. I believe the powder is composed of phosphate of soda and a little borax. Spirit lamps can also be used, but do not give so much light. Over the flame can be fitted a cylinder or a kind of square shaped lantern with the above mentioned kind of glass. The light is nine times stronger than the usual red light, and is very convenient and agreeable to the eyes in preparing emulsions and dry plates.

AUXILIARY EXPOSER FOR PHOTOGRAPHIC CAMERAS.

By Captain Eugene Himly, *Berlin.*

It has been known for many years that additional exposure of the plates by artificial light either before or after exposing is apt to make the plates more intense than without it. Several years ago I invented and got a patent on a new

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apparatus by which diffused day-light is admitted into the camera during the exposure which shortens the same without having the bad, foggy effect of common exposures by artificial light before or afterwards.

I will briefly describe this device. The board on which the lens is fitted is pierced by slots above and below, but they do not pass the board straight, being directed obliquely down or upward. On the sides I employ round holes, so as not to weaken the lens board too much. On the front of this board a light movable frame runs in guides. The frame covers all the apertures entirely, and by means of a spring and a knob with catch, it can be raised with the hand so that all the apertures are open, while the catch holds it in position. The light can now enter the interior of the camera, but to avoid fogging, this direct light must be prevented from shining on the plate. A large piece of blackened tin, shaped like the board carrying the lens, is fitted against the board by means of four long nails or screws. This tin has in the center either a round or square aperture, so that the rays of the lens can pass through. However, the tin must slide on these nails, etc., because the more the tin is kept from the board, the more light is admitted into the camera. This diffused light mixes with those rays which come through the lens and makes the plates take the impression one-third faster. The exposure being at an end, the knob is touched, the spring draws the frame over the apertures and then light is shut out of the camera. This apparatus can be especially recommended to those who still use collodion; for dry plates it does not answer so well, on account of the short exposure. For several years I have worked with this apparatus with great success.

As I have also to make many exposures during experiments with artificial light and the above apparatus did not answer so well, I invented therefore recently a different apparatus, which answers equally as well for artificial light as the other did for day-light. On the inside of the lens board I fasten four small electric incandescent lamps of about twenty-three volts, one after the other, and also I put in the circuit, instead of resistance, a ninety-seven-volt lamp. All the lamps receive the current from a dynamo, but batteries can be used equally as well. It has to be carefully arranged that the lamps burn only red, not white. If the lamps should glow white the plates will fog. Again, these lamps have to be screened off by a piece of blackened tin having in the center a round aperture. Through this it is impossible that any direct rays fall upon the plate, but only diffused light. Also with this apparatus the exposure is shortened by one-third without the negatives showing any unwarrantable defects; they all have clear shadows. This kind of exposure shortener could be made use of in astronomical photography, as it is very easy to make very small electric lamps and to fit them on the photographic apparatus of the telescope. I therefore do not hesitate to publish it, hoping Harvard College Observatory and others will try it. Of course by means of a cut-off it is easy to make or interrupt the current during the exposure.

I WISH to say that I find the Annual full of very valuable articles, doubly so from the fact that we get the experience and views of our English friends, as well as those of our photographers on this side of the water. The photographer who hesitates to buy a copy has but little idea of the value it would be to him. I congratulate the Editors and Publishers on the very pronounced success of the work.

GUSTINE L. HURD.

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THE DETECTIVE CAMERA; A SUMMARY OF EXPERIENCES AND OPINIONS.

BY HARRY T. DUFFIELD.

[Read before the Society of Amateur Photographers of New York.]

(*Continued.*)

Is it not desirable that the shutter should be so constructed that the foreground receives more exposure than the sky? W. M. Butler: "A diaphragm shutter, working between the lenses, is best; this will expose both alike." A. A. Adee: "It is desirable to give more exposure to the foreground than to the sky, but shutters so constructed necessarily work comparatively slow; I have had several, and the fastest was about $\frac{1}{40}$ of a second." Archibald I. Carson: "Do not think any such arrangement possible for very quick exposures." L. M. Petitdidier: "Not necessarily; an instantaneous picture generally shows uniform lighting." R. E. M. Bain: "Do not think it cuts any figure in shutter work." Rev. E. C. Bolles: "Yes: this is an imperative need, and one which the dealers should respect." M. T. Wintringham: "No; the most satisfactory work will be obtained with a shutter that distributes the light evenly." Charles Quartly: "I think not for detective work." Frederick Bruce: "Theoretically advisable, practically unnecessary." George Marshall Allen: "Yes, if you use the camera only one way; if used reversed, one side receives more light than the other; a round opening is best all around, if you cannot shift the shutter." Walter Clark: "It is an advantage in some subjects; with water in the foreground, uneven exposure would give the reflection greater value than the sky." Charles Simpson: "I should hardly think so; as, for instance, in water and street views in summer the foreground requires in bright sunlight even less exposure than the sky."

On what part of the camera should the release of the shutter be? Nineteen say on the side; nine on the bottom; two on the top. Charles Simpson: "On top or the right side; mine is underneath, and is very unhandy on that account." J. V. Black: "On the side, not on the top or bottom." H. M. Grisdale: "I like it best on the bottom, as it is less likely to be set off by accident." A. A. Adee: "Not on the camera at all; the chance of jarring in a moment of excitement is very great; it should work by the pressure of a bulb held in the hand which does not touch the camera." Harry D. Williar: "I prefer right-hand side, about two-thirds distance from the bottom, as this enables you to have use of the hand to steady and the thumb to make the release." Issac T. Norris: "Is not this purely a matter of convenience?" Major George Shorkley: "On the side, and to be worked by a movement backward, not sidewise." William E. Bond: "I prefer it on the next side to the right of finder." Edgar Richards: "Underneath, so that the victim does not know when he is shot." A. C. Abbot: "Depends on wish of operator."

Please give the formula of the developer you use? Pyro and potash, or pyro, soda and potash seem to be the favorite developers.

Walter Clark: On Seed's, Murray's developer, *i. e.:*

No. 1.

Sulphite of soda	1 ounce.
Water	8 ounces.

No. 2.

Carbonate of Soda	1 ounce.
Water	8 ounces.

Normal developer. No. 1, $1\frac{3}{4}$ ounces; No. 2, $\frac{1}{4}$ ounce; pyro, dry, 4 grains.

A. C. Abbot: Equal parts of

No. 1.

Hydroquinone or pyrogallic acid	10 grains.
Water	1 ounce.

No. 2.

Carbonate of soda	40 grains.
Water	1 ounce.

And the ferrous-oxalate developer, *i. e.*, one part of saturated solution of ferrous-sulphate and three parts of potassic-oxalate.

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D. E. McComb: Modified Ripley; normal developer, as follows:

Pyrogallic acid	6	grains.
Sulphite of soda	30	"
Carbonate of potash	13	"
Carbonate of soda	5	"
Bromide of ammonium	¾	"
Citric acid	¾	"
Water	1	ounce.

Albert H. Pitkin: Eastman's formula for ferrous-oxalate for stock solution; to each ounce of developer I try to add two ounces of brains. (Too much brains causes "fog.")

James H. Stebbins, Jr.: His own formula:

No. 1.

Pyrogallic acid	50	grams.
Hydroxylamine chloride	6.5	"
Water	500	c.c.

No. 2.

Sulphite of soda (crystals)	100	grams.
Carbonate of soda (crystals)	200	"
Water	500	c.c.

Normal developer. For use take 1 dram each of Nos. 1 and 2, and add 2 ounces of water.

George Marshall Allen uses this:

No. 1.

Pyrogallic acid	1 ounce.
Sulphite of soda	4 ounces.
Sulphuric acid	1 dram.
Water, to make	16 ounces.

No. 2.

Carbonate of soda	2	ounces.
Carbonate of potash	2	"
Water, to make	16	"

Edgar Richards: The Washington Camera Club developer. The club formulas have been so proportioned that a single alkali solution can be used either with the pyrogallic acid or hydroquinone solutions. The hydroquinone developer is the one the members of the club most generally use either for time or instantaneous work. I prefer the hydroquinone because it does not stain like pyro; but I use them all indiscriminately, of course, not at the same time.

POTASH SOLUTION.

Carbonate potash, granular, c.p	15	per cent.
Sulphite soda (crystals) c.p	10	"
Distilled water	75	"

Commence with using one-half of the quantity of pyro solution used to begin development, and increase gradually to the full amount, 8 drams in 4 ounces of water, if necessary to obtain the desired contrast.

PYRO SOLUTION.

Pyrogallic acid	5	per cent.
Sulphite soda (crystals) c.p	20	"
Distilled water	75	"

For time exposures, use 2 drams in 4 ounces of water, and increase to 8 drams gradually, if intensity of negative appears too weak.

For instantaneous and portrait work, commence with 1 dram in 4 ounces of water until development starts, then increase gradually to the full amount—8 drams.

HYDROQUINONE SOLUTION.

Hydroquinone	2.25	per cent.
Sulphite soda (crystals) c.p	10	"
Distilled water	87.75	"

Use 2 ounces with 2 ounces of water; add 3 to 6 drams of potash solution. Development is slow at first, but once started the negative gains density rapidly.

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Continue development further than with pyro, as density is lost in the hypo. The mixed developer can be used repeatedly and does not cloud nor stain.

R. E. M. Bain gives the following:

Sal soda	¼ ounce.
Sulphite of soda	½ "
Water	15 ounces.

To 2 ounces of the above add 2 ounces of water and 6 grains dry pyro.

W. M. Butler uses this formula:

Granulated carbonate of soda	4 grains.
" sulphite of soda	8 "
Pyro	1–3 "
Water	1 ounce.

A lady amateur says that this developer gives excellent results:

No. 1.

Hydroquinone	48 grains.
Alcohol	1 ounce.

No. 2.

Sulphite of soda (crystals)	2 ounces.
Carbonate of potash, c.p.	3 "
Water	12 "

Normal developer. No. 1, 1 dram; No. 2, 2 drams; water, 2 ounces. If not strong enough, the hydroquinone can be increased up to 2 drams.

Dr. H. G. Piffard gives the following developer, which, as it does not stain the hands, he names

THE LADIES' DEVELOPER.

Hydroquinone	1 gram.
Carbonate of soda	3 grams.
Carbonate of potash	4 "
Sulphite of soda	7 "
Water	100 c.c.

Isaac T. Norris: Pyro and soda or pyro and potash; either works well; the latter, however, needs a little care not to fog sometimes the high lights.

(*To be continued.*)

LANTERN SLIDE MAT CUTTERS.

BY JOSEPH P. BEACH.

[Read before the Society of Amateur Photographers of New York.]

IN reducing large negatives to sizes suitable for lantern slides, the resulting positives often cannot be made conformable to the standard mats which are sold by the dealers, and hence it becomes necessary, in many cases, to make mats expressly for the required slide.

This usually has to be done by hand, with a pen-knife or perhaps a pair of scissors. Mats thus made even by expert hands are rough on the edges, or at the corners, or, where the lines should be clean cut and straight, a crooked and ragged appearance will be shown in the enlarged picture on the screen. Then, in hand-made mats, no two are exactly alike, and the making of a dozen or so involves much more labor than many persons care to undertake.

These difficulties can now be overcome by any one of average mechanical ingenuity in a very simple manner and at very small expense.

At the retail dry goods stores, "dress steels" ⅜ to ½ inch wide, made of thin steel, covered with cotton, are sold for a few cents each. At the corset factories these steels of any length and width may be procured, or sheet steel in strips may be obtained at hardware stores. The average dress steel, however, is long

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enough for a lantern mat, and can be converted into a cutter by proceeding as described.

These steels are thin and pliable. They are easily cut with a pair of heavy scissors, and are readily made to conform to different shapes by screwing them to various forms of wood. The braided cotton covering is easily cut off by running a knife blade along its length. If a very sharp corner is to be turned, the steel may be softened at the required part by holding that part over a lighted gas jet for a few minutes, and then letting it slowly become cool. If required the steel may be re-tempered, after obtaining the required shape, by again heating it and while hot plunging into a bath of salt and water, or by smearing the part with grease, setting fire to the grease, and as soon as it is burned off plunging the steel into cold water. This sufficiently restores the temper of the steel to keep a good cutting edge for quite a long while.

The cutting edge is made first by filing one edge of the steel, using for this purpose a fine file, or a good cutting file, and a finishing file to give a smooth, keen edge, or the edge can be obtained by the slower process of a grindstone.

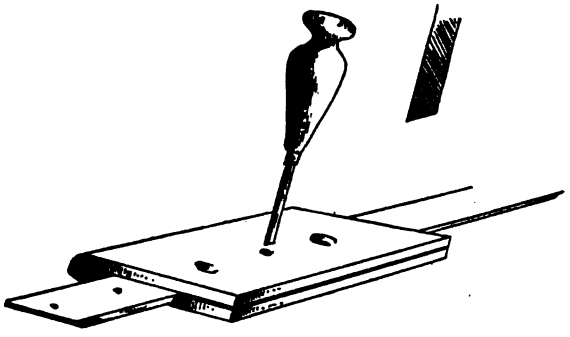


FIG. 1.—The hinge closed upon the steel strip, showing the awl just entering the die. The small section above shows the angle at which the end of the awl should be ground to work best.

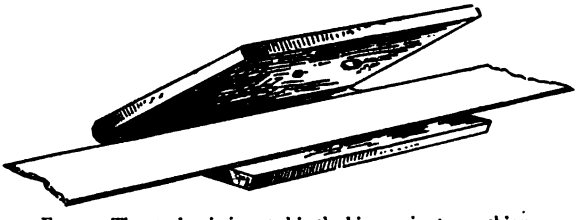


FIG. 2.—The steel strip inserted in the hinge prior to punching.

Having obtained a cutting edge (which should be made all on one edge of the steel like a chisel blade), the steel may either be drilled with holes for the insertion of small screws, or the holes can be made with a steel punch and a hammer.

Fig. 1 shows the manner of punching holes through the steel. The neatest and best way to punch a hole in the steel is to obtain an old cast-iron hinge. Through both lips of this hinge cause a hole of the required size to be drilled. Then lay the flat steel between the two lips of the hinge and close the latter upon it. This holds the steel as in a vise. Now take a shoemaker's awl the point of which has been ground or broken off flat. Put the awl through the hole in one of the lips of the hinge and strike it through the steel. This cuts a clean hole in the piece of steel, and as many such holes can be made as may be desired. It is well to grind a slight bevel on the cutting edge of the awl.

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Being now prepared to make mat cutters, proceed as follows: Fashion out of some ⅜ or ½-inch thickness of tough wood—say ash or black walnut—white wood or even pine the form of the mat you require. Make it the thickness of the steel smaller than the desired mat.



FIG. 3.—Manner of holding block in vise, and method of bending the steel around it. The lower portion is the ⅜ wood to which the form is screwed.

Screw this "form" or piece of wood to another square piece, ¼ or ½ inch larger all round than the "form." The object of making this piece square is for convenience in using the cutter after the paper to be cut is folded. It may be folded to cut eight to twelve or sixteen mats at one cutting.

Through the center of both pieces bore a hole ¼ or ½ inch in diameter.

Now encircle the smaller (or "form" piece of wood) with the steel, fitting the steel snug to the back or shoulder, and as it is wound around the form secure it at proper intervals, by means of secrews. Small round head screws are best (say No. 2 ⅜-inch).

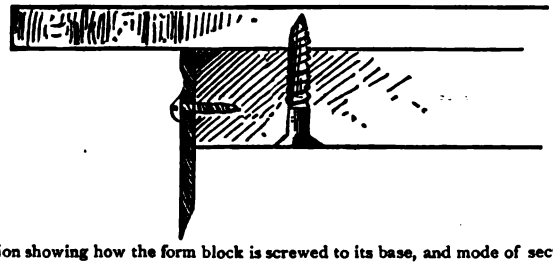


FIG. 4.—Section showing how the form block is screwed to its base, and mode of securing the steel cutter to the block.

The outside edge of the steel should be at least ¼ inch higher than the form, and the filed or bevel side of the steel should be placed next to the wooden form. Where the steel laps at the finish mark it and cut off the surplus. This

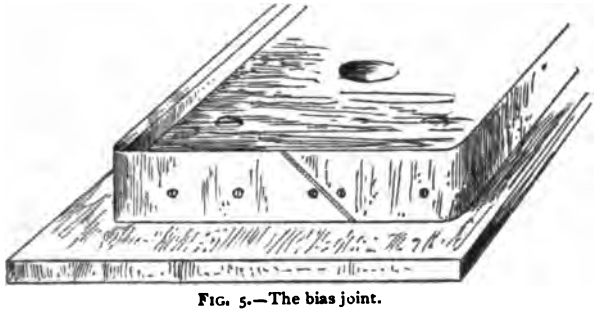


FIG. 5.—The bias joint.

joint may be further stiffened or strengthened by an extra piece of steel screwed on over the joint, but cut away so as not to interfere with the cutter.

I have found it best to cut the ends on a bias or obliquely as shown in Fig. 5, which makes a better point.

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In putting the steel on the form it should be fastened first to the center of the arch on the form, then bent around each side until the ends meet as shown in Fig. 3. Owing to the elastic nature of the steel it is necessary to cut off of the sharp corners of the form double the thickness of the steel, in order that the steel will hug the form closely after being bent in place.

The cutter is now ready for use. Fold your paper to the number of mats and size required. Lay it on a block of hard end wood—that is, the end of a log of suitable size; or a block of mahogany, cherry or apple. One block a few inches square will last a long time if the precaution is taken to strengthen the sides and bottom by cheaper and heavier stuff.

There is no doubt that mats can be cut out by brass forms, made of printers' rules, which can be bought at the type founders'; but the sharp edges of these brass rules will very soon become useless and besides the cutting edge is not of the proper shape to make a clean cut mat. It pushes the paper outwardly and tears where the cut should be smooth and clean. A very considerable experience in making these cutters of various materials has convinced me that neither tin, iron, brass or German silver will do the work required as well as the thin sheet steel so readily obtained and so easily worked.

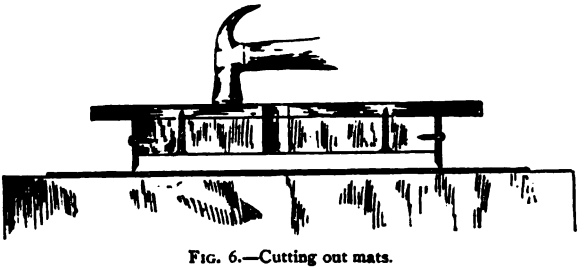


FIG. 6.—Cutting out mats.

I have made good, sound mat cutters out of 2½-inch gas-pipe, which was face hardened after filing the inside edge until the outer edge was a keen cutter. I have also made fair mat cutters out of square and round brass pipes as used for ornamenting chandeliers, but none of these were satisfactory or in the end worth the labor bestowed. I even had some iron and brass cast into the desired shapes, but they were not worth the labor as tools to work with. My experience teaches that the cheapest and best are those made as above described, and I have some cutters made of thin clock spring steel which have been in continuous use for several years and have not even required filing in that time.

The secret of cutting a good mat is care. After the laying on of the cutter, the blows of the hammer should first be light, and delivered all around the form. Then set the cutter in by a few more well delivered harder blows. After the cut is complete, liberate the cutter by lightly tapping it until it will come off of the cutting block.

I find it convenient, when a large number of mats are to be cut, and even if there are only two or three, to do the work in the following manner:

Take a piece of thin pasteboard the size of a lantern slide. Cut it the exact size of the folded paper you propose to cut into mats. With the cutter make this pasteboard into a mat, which should be centered if the cutter is a round or an oval. Sand-paper the inner edge of this pasteboard mat until the cutter may be easily placed within the opening.

Now, when it is desired to cut mats, the paper is folded to the size and this

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pasteboard mat laid over it. The cutter is then fitted in its place and a few whacks of the hammer completes the operation without the trouble of finding the exact spot where the cutter should be placed on the blank paper.

The dress steels may also be utilized for making cutters for special purposes.

A piece of the sharpened steel an inch or two long, fastened to an appropriate handle, may be used as a chisel to cut a straight line. Another piece may be bent to an angle and used to cut out corners. A very sharp angle may be made by annealing the steel and bending it in a vise before fastening to the handle. An easier way, however, is to join two straight pieces at right angles.

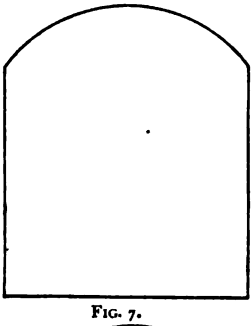


FIG. 7.

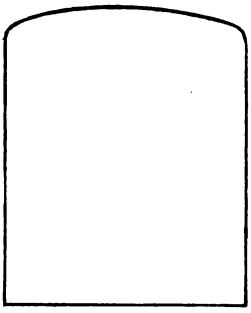


FIG. 8.

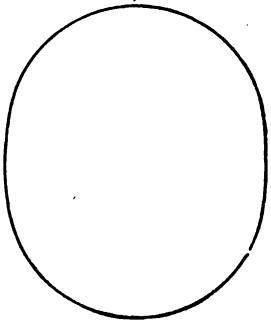


FIG. 9.

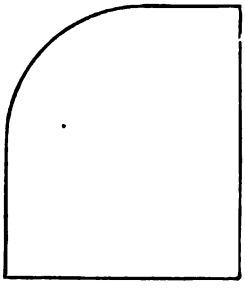


FIG. 10.

Figs. 7, 8 and 9 show some of the special shapes that can be made. Fig. 10 shows a quarter-section die constructed to make round corners.

Other shapes, like gouges or semi-circles, can be made, which will be found useful in making mats where only one or two are required.

It is obvious that this class of mat cutters can be utilized in cutting out suitable pasteboard mats for photographs as well as for lantern slides, by making the cutters of desired size.

In this way almost any person can have, at a very small cost, a mat cutter that will answer every particular purpose, and if he wishes he can have an assortment of large and small ones to suit any slide he may have prepared or any picture he may wish to mount.

It should be understood that this manner of making cutters for mats will not make such a perfect tool as the finished articles (costing four or five dollars) made by a practical mechanic, but will answer the purpose of the average amateur.

The foregoing description, with accompanying sketches, has been written at the request of one of your members who thought this paper might be useful to those who wish to make their own mats.

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DEVELOPMENT IN TWO SOLUTIONS.

BY D. BACHRACH, JR.

[Read before the Society of Amateur Photographers of New York.]

SINCE writing the communication to your Society at the instance of Mr. Duffield, I have been experimenting carefully and using the method outlined in our daily practice, and in order to answer the numerous correspondents to whom it is impossible to do justice by letter (for want of time), and in order to publish the improvements and alterations I found necessary after careful trials, I will give herewith the formula I found to work the best. In my former article I put myself down in favor of the hydroquinone developer used in two solutions (as I gave it for pyro), by first dipping in one solution and then developing in the alkali alone. So far as portraiture is concerned I take that back, and I have again taken up the old friend, pyro. The hydroquinone negatives looked clearer, brighter and prettier than those developed with pyro, but, alas! like my former experience in the days of ferrous-oxalate, the promise in the negative was broken in the print. I find that the pyro negatives had a greater range of tones and retain the delicate half-tones better, while I still think that for landscape work, where more breadth and vigor are necessary, and where, on account of the volume of light, over-exposure and solarization frequently take place, the hydroquinone yields the best results, as well as in all cases where clear shadows and great density in high lights are necessary. As I find the hydroquinone keeps better if meta-bisulphite of potash is added to it, my formula now reads:

No. 1.

Hydroquinone	1 ounce.
Sulphite of soda	4 ounces.
Meta-bisulphite of potash	30 to 40 grains.
Distilled water	32 ounces.

No. 2.

Sal soda (crystals)	2 ounces.
Sulphite of soda (crystals)	2 "
Distilled water	32 "

I have also improved the formula and secured much more clearness in the shadows and improved keeping qualities of the pyro solution, by additions to the former formula, and also avoid the staining of fingers. In rapidity of development for large numbers of negatives at a time, as well as for uniformity of result, this method, in my opinion, is without a rival. The following is the formula as improved:

SOLUTION No. 1.

Pyrogallic acid	1 ounce.
Sulphite of soda (crystals)	3 ounces.
Oxalic acid	30 grains.
Yellow prussiate of potash	1½ ounces.
Meta-bisulphite of potash	120 grains.
Water	20 ounces.

First dissolve the sulphite of soda in the water (heated), then add the oxalic acid, the prussiate and the meta-bisulphite of potash, and finally the pyro and filter.

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SOLUTION No. 2.

Stock solution of sal soda	1 ounce.
Stock solution of sulphite of soda	1 "

Water enough to make 8 ounces of developer.

The stock solutions of the two soda salts consist of one pound to a half gallon of water for each. The development by this process is so rapid that using partly old developer with it does not always restrain sufficiently, so in most cases an addition of a solution of bromide of potassium, before commencing to develop, to Solution No. 2, will be an advantage. For instantaneous exposures this is, of course, not required, and this method of development is especially advantageous for that sort of work.

If no old developer is at hand to mix with No. 2, it will be necessary to add some bromide solution, also the first plates will come up too rapid and flat. Old developer (No. 2) is the best to mix with the new. I use one-half as much of the old as I make of the new solution.

This developer is also extremely economical (though I do not look or care for that), not over one-third the amount of pyro being used as in present used methods.

In summer-time it may be necessary, when the solution cannot be kept cool, to add some astringent to the pyro solution to prevent softening of the gelatine and frilling. In that case I have found bichloride of mercury the best thing to use, being without any effect on the action of the developer, only hardening the film and preventing decomposition. I have used 10 grains to the 20 ounces of pyro solution given above, and a larger quantity will not hurt the solution.

MY DAGUERREOTYPE EXPERIENCE.

BY ALEXANDER BECKERS.

[Read before the Photographic Section of the American Institute.]

IN response to a request of your Chairman of the Executive Committee, Mr. J. B. Gardner, I hereby give you a brief outline of my daguerreotype experience.

The details of this senior branch of photography can interest you, I presume, only in such parts as have a bearing on the more recent modes of picture making. A comparison of these will show the progress of the half century we commemorate and also remind us of the centennial of the birth of Daguerre. The first daguerreotype I ever saw was made by Robert Cornelious, in Philadelphia. His laboratory was conspicuous, for on the outside could be seen a large mirror swung on a bracket to illuminate his sitters with reflected sun-light.

The use of bromine was not yet known in 1840; but Boudine introduced it soon after. The same year Robert Chilton called on my brother to make hypo-sulphite of soda, offering $4.50 per pound; stating that the French article, though very impure, cost $5 per pound to import. Thus the first hypo was made here, at the corner of 23d street and Fourth avenue, the present site of the Young Men's Christian Association. Orders for other daguerreotype chemicals quickly followed, and in 1843 Louis Beckers was the first to manufacture these chemicals exclusively, at Old York Road, Philadelphia.

The same year (1843) I entered the daguerreotype business of Mr. Frederick Langenheim, in the Merchants' Exchange of Philadelphia. Here there was little to be seen of the things you see now in a photo gallery. A kind of hiding-place for a dark room and a spyglass-like camera were the only indications of the mystery I was to learn. The camera rested on a candlestick-like tripod, with three set screws for adjustment, and was placed on an ordinary table. To

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interchange the ground-glass and round daguerreotype plates, it was necessary to unscrew a flanged ring and replace the same by a reverse motion. For the adjustment of focus there was the rack and pinion, as Voigtlander's instruments still have. This instrument was one of the first made according to the mathematical calculations of Professor Petzval, of Vienna, having two achromatic lenses. One of these instruments was sent by young Voigtlander to his college mate, William Langenheim, as a present, with supplies and instructions, but also with the warning not to attempt daguerreotyping unless he had courage enough to try five hundred times more after failing in the first hundred pictures. This young lawyer, William Langenheim, proved not to have the courage, but his brother Frederick had, and succeeded so well that he was offered six hundred dollars for that odd camera. The preparing of daguerreotype plates will not interest you much, though I should state that the production of a chemically clean surface on silver is a difficulty that increases four-fold with the size of the plate. Another difficulty is the use of the chemicals in a volatile state. The iodine can be controlled by sight with faint day-light; but the bromine only by even temperature and constant practice. The round plates were used only for a short time, and so far as I know Langenheim was the first to introduce a square camera, plates and holders; also a tripod in place of a table. In the summer of 1843 the first dozen of small Voigtlander objectives were imported. One of these, I believe, is still in the possession of Mr. J. B. Gardner. Soon after four large ones, for 6 x 8 pictures, were imported. In the fall of that year Philipe Haas, formerly of Paris, showed Fizeau's method of fixing the image on the plate by cold gilding. Shortly after this it was found that the picture could be gilded in much less time and made more brilliant by heating the plate while the gold solution was on it, and so Fizeau's method went entirely out of use. During the winter of 1843 the first polishing wheel was made. It was constructed like an ordinary grindstone, the wheel being cushioned and then covered with buckskin. With the aid of this machine, and after weeks of hard labor, we succeeded in making the first 6 x 8 daguerreotype. At this time the only sizes used with any degree of success were 3 x 4 and $5\frac{1}{2}$ x $4\frac{1}{2}$. There were also many plates used two sizes smaller that were designated as sixths and ninths. At that time we also succeeded in making a picture of a sick lady at her own residence, which was then deemed impossible.

In the spring of 1844 Mr. Edward White bought one of the large Voigtlander instruments, and for him I made the first large daguerreotype in New York City, at 175 Broadway. There were then only a few daguerreans in the city. They were J. Gurney, Anthony, Edwards & Chilton, Van Loan, Burgess, and a few others I cannot recall. I remained with Mr. White until December, 1844, when it was impossible to make a picture on account of the severe cold, for my employer would not allow a fire in his place over night. Then I commenced business for myself at the corner of Nassau and John streets, and after May, 1845, at 201 Broadway, under the firm of Langenheim & Beckers, agents for Voigtlander & Louis Beckers.

At that time the large Voigtlander objectives had a chemical and a visual focus, so that in order to make a picture sharp the lenses were moved out one-eighth of an inch. This we soon after rectified by having the ground-glass of the camera set permanently one-sixteenth of an inch nearer the lens than the sensitive plate.

That summer I took a view of High Bridge, before the scaffolding was removed. This picture was made for the engineers, and was perhaps the first taken in this country in aid of architecture.

By taking out-door views, I soon discovered that the plate increased in sensitiveness by not exposing it immediately after sensitizing. I found, however, that any very long delay (say for three hours or more) made the plate entirely useless. In 1847, the optician, Fitz, Sr., made for me a speculum metal mirror, with which I was enabled to avoid the inversion of my pictures. For many faces and objects this was a great advantage, though it doubled the time of exposure. This mirror was attached to the instrument at an angle of forty-five degrees, and

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so well did it serve my purpose that I continued to use it for a number of years.

In 1848 Langenheim bought Fox Talbot's patent for the United States at six thousand dollars, but financially it proved a failure, as this process never became popular in this country. Why it should *not* prove a success is quite evident when we remember how infinitely superior the daguerreotype was to any sun picture made on paper. In England Talbot's process could be received with greater favor, as it did not come in competition with the daguerreotype as made in America. It is true that the daguerreotype was made in many of the large cities of Europe, but in none of these could it compare with the work of this country. The daguerreotypists here took the lead in the beginning; and up to the time when the collodion process became popular, never allowed themselves to be excelled by any other nation.

In 1849 my firm was changed to Beckers & Piard. Having now more time, we succeeded in constructing a machine for cleaning plates in one-third the time required by hand.

In 1852 we contrived a method for making four pictures on one plate, and in such a way that the exposed quarter was in the center of the field of the lens. To us this was a very useful improvement, for locket pictures were then in great demand. In 1856 Mr. Ormsby obtained a patent for this same multiplying plate-holder, and collected considerable money on it, until my priority claim proved his to be void. The production of stereoscopic pictures was the next task. Marsher, of Philadelphia, made patent cases to show these portraits in a very neat manner. In 1854 F. Langenheim commenced the manufacture of stereoscopic views on glass. He sent me three dozen, to find sale for them in New York. At the first exhibition of these pictures one-third of them were broken. This loss set me to thinking how to contrive an arrangement to show and secure the pictures against breakage, and in 1857 I obtained a patent for my revolving stereoscope. The increasing demand for this machine induced me to sell my daguerreotype business in 1858.

Thus being relieved from catering to the vanity of humanity, my career as a daguerrean was ended.

HOBOKEN, March 4, 1889.

FIFTY YEARS OF LIGHT, FIFTY YEARS OF PRACTICE, FIFTY YEARS OF ADVANCEMENT—WHAT ARE THE RESULTS?

BY ABRAHAM BOGARDUS.

[Read before the Photographic Section of American Institute.]

THE daguerreotype on the silver plate, followed by the ambrotypé or positive on glass, and now the photograph on paper.

These various productions have followed each other in rapid succession, and the photograph, with its many variations, is the picture of to-day.

Results, did I say? The exposure in the camera reduced from thirty minutes to the fraction of a second. The at first dim, evanescent image succeeded by the strongly defined impression.

Then, from each sitting but one impression; now, from one sitting impressions without limit. Then, a burdensome and complicated set of apparatus was necessary to secure a picture; now, a spring is touched and the embryo picture is secured. Then, the nature of the materials used required the immediate and continued prosecution to the finish, no stopping or waiting in any part of the operation; now, there is no limit to the time; do it at your leisure; carry your plate thousands of miles, and develop it this year or the next. Then, the picture must be under glass for safety; now, they are mailed as freely as any printed matter. These are some of the results.

Little do the general public know of the time, labor and money spent in experimenting to bring about these results. Many expensive and difficult experiments resulted in failure. These were followed by some variations, another trial and another failure; but its votaries were not to be discouraged. Every point

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was discussed, every difficulty attacked, until success was attained, and the process has been so simplified that persons of very little skill can practice it with some degree of success.

Honor, all honor, I say, to the pioneers who, by hand and brain, have accomplished all this. Many persons now enjoying the benefit of the labor of these pioneers fail to give credit "to whom credit is due," and some in their wisdom seem to consider the now easy process as the result of their superior ability; they say, "Those old fellows had a hard time to make pictures, but just see how easy we do it." The hard time those pioneers were having was the means of placing it where you can reach it, my friend.

The usual result of simplifying any difficult process is to place it in the hands of those who never would have touched it had it remained difficult, and they are the first to say, "See how easy it is!" And, as I said last month at the Society of Amateurs, "The men who have worked for half a century to bring photography to its present status know of the difficulties encountered before success was attained, and can better appreciate its worth than the novice who finds his newly purchased satchel to contain everything required, and, as the patent medicine chest says, 'with full printed directions inside.'"

Somebody acquired knowledge by careful experimenting to prepare and classify those chemicals. Somebody possessed brains enough to write those directions, and *that somebody* did not find it so easy as the aforesaid novice. Practical knowledge is acquired by hard work and does not come ready-made.

I will just mention one troublesome, and, in fact, incomprehensible, difficulty. The workers of the old wet process will remember the uncertainty in making collodion (plates did not come ready coated then); the careful and exact weighing, the mixing and the shaking, and then on trying it we found it worthless. What was to be done? Why, just buy another lot of ingredients and try it again, and perhaps with the same result; and these large bottles of worthless collodion are placed on the upper shelf, and another mixture perhaps gives you something to work with, but its results are hardly up to your desires. Now, singular to relate, after those two bottles had "sparked" on that upper shelf for two or three months, mix their contents together and they will often produce the best work you have made in years. Neither will produce a picture alone, but mix them and the combination seems perfect. When mixing our chemicals we could not tell whether they would be good or good for nothing. So much for the past.

I am now going to indulge in imagination. If my audience will go with me, I should like to carry them to a meeting that will probably be held fifty years from to-night. It will be the one hundredth anniversary of Daguerre's discovery. I do not expect to be present on that occasion, but, as I said, we will imagine ourselves there. It will be held in the year 1939. I do not know the name of the gentleman occupying the President's chair. I do not know the speaker's name; he speaks on subjects so far advanced that we do not comprehend him. The audience looks very much like the one assembled here to-night, except that the style of dress is entirely changed. The audience room is fitted up entirely different; the walls, the ceilings, the seats, all belong to an advanced age. And the light! No gas-light, no electric light or any artificial light; these are as much things of the past as the old dip candle is in our time. Although it is evening, yet the room is lighted by day-light; by a simple contrivance the sunshine is stored in a reservoir during the day, and its rays are released as needed. There are no reporters present; all out of date. An instrument with sounding board is in front of the speaker; it is connected with wires with all the newspaper offices, and gives direct to the compositor in the printing room every word as it is uttered. This instrument is the result of a contrivance by a man named Edison some fifty years before. A venerable antiquarian reads from an old musty book found in his library the report of a meeting of a society called the Photographic Section of the American Institute, held in the City of New York, March 5, 1889. That meeting celebrated Daguerre's fiftieth year of discovery. Professor Henry J. Newton was the presiding officer and Messrs. O. G. Mason and J. B. Gardner were the members of his cabinet.

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As the venerable man reads the audience laugh heartily at the antiquated ideas promulgated at that meeting, and they congratulate themselves on living in an age when such ignorance in regard to photography has passed away. The officers of that meeting are spoken of as fairly intelligent men for that dark age, but modern inventions had so completely changed everything connected with the process that the complications worried over fifty years before had become obsolete.

The reader said he found page after page occupied in the discussion of dry plates, dark rooms, flash-lights, over-timed and under-timed negatives, amateur outfits, etc. All these terms were out of use and the audience wondered what it all meant.

The reader continued, and said at all the society meetings and in all the publications of that day the one subject that seemed to occupy the entire time and attention was something called *developer*. A member moved a recess of half an hour and the appointment of a Committee to examine the society dictionary and report what *developer* was, any way. (The dictionary was a book some three feet by four and two feet thick, mounted on a frame with rollers for convenience.) The motion was adopted and recess taken. During the recess the audience interested themselves in examining some photographs made fifty years before. These pictures had been carefully preserved, and were highly valued, not for intrinsic worth, but as relics of a former age. They bore the names of Sarony, Kurtz, Falk, Fredricks, Mora, Rockwood, Anderson, Hargrave, Alman and others. These men were spoken of as "old masters." There were also exhibited some daguerreotypes bearing the stamps of Gurney, Brady, Lawrence, Becker, Bogardus and others, but there was not a person present who had ever made one or knew how they were made. It was stated that at the School of Mines of Columbia College a set of daguerreotype apparatus had been preserved, but the present faculty did not know how to use them.

On re-assembling the Committee asked for time, saying it would be impossible to report before the next meeting, as the subject of *developer* occupied a large portion of the big book, and the more they read the less they knew; and they should be obliged to call to their aid all the professors of some college to explain the complication called *developer*. The remaining time of the meeting was used to show the great advances made since the semi-centennial referred to, and for the men of that day to think they knew anything about photography was simply ridiculous. "Why," said one worthy brother, "they could not produce a color, and they could not deliver a dozen pictures under several days, as they even printed with nitrate of silver in the sunshine only, and they did not know any better than to fix their prints with hyposulphite of soda, that miserable salt, that eats itself up and bleaches everything it touches."

The newspapers of that day, claiming a circulation of as many millions as they now do of thousands, are all printed from negatives. The matter once set up is immediately photographed on plates the size of the sheet, and as many negatives as are required to print the immense edition are at once supplied.

There are no photograph galleries at that day. An individual carrying a camera under his arm goes from house to house and takes your picture. The lenses are at one end of the box and the finished picture comes out of the other end, *if the box is long enough.* It's the make-'em-while-you-wait process.

All the photographic literature was practical. The writers on imaginary theories and impracticable nothings had long since gone to their own place. No demand then for articles on the "Evanescent nature of nothing as compared with the translucent equanimity of the intangible."

When the meeting adjourned the audience were conveyed to their homes by real rapid transit, propelled by electricity, which had superseded steam; and by its use time and space were almost annihilated.

There, I think we have been away long enough, and had better come home while it is safe.

I am asked all kinds of questions. Will the colors ever be photographed?

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Well, in this day of wonders I am not going to say. Scientific men say color is a sensation, and when we can photograph a sensation then we shall have the colors. A good story is told of a woman who brought her bouncing baby for a picture. When the operator came with his plate he found her "spanking" the baby. When asked why she did that she said he always had such a good color after that operation. Still, I do not think the color in this instance was a chemical production. It seems to have been produced by *hand.*

Question.—Is photography a fine art? That depends on where you get your pictures. If you go down to Coney Island the proprietor is so *clam*-erous for patronage that he does not give much attention to the "art" question; but many of the pictures produced in Europe, and also in this country, show as much art in posing, lighting and composition as many of the world-renowned works of art do.

Question.—Will photographs fade? I hope so. I hope the cheap trash now made in quantities will fade, and that right early, and not disgrace this age in the eyes of the next generation.

Question.—Will prices continue to come down? With the photographer on one side, and the employee, stock dealer and the landlord on the other, I hope not. From certain notices at the photographer's desk, I think it's the sitter who is obliged to "come down."

Question.—Is it true that the photograph of the murderer has been seen on the eyes of the murdered man? Well, we are using many substances nowadays for photographing, but I have not seen any exhibited on dead men's eyes. When I see that I shall look for my picture on the eyes of every fish I catch.

Question.—Will the process be still shortened? They are taken pretty quick—so quick that some of the pictures of females seem to have been taken before they had had time to more than half dress themselves.

Question.—How many New York photographers have retired rich?

Question.—Where do photographers go to when they die? These questions I will answer when I get the statistics.

THE DAGUERREOTYPE PROCESS.

BY J. B. GARDNER.

[Address before Photographic Section of American Institute.]

Mr. President, Ladies and Gentlemen:—It is now a half century since the daguerreotype process was first whispered to a distinguished American citizen, Samuel F. B. Morse. He says: "In the winter of 1838–39 I was in Paris, and was invited by Daguerre to see his results in sun painting. At this time, viz., early in the spring of 1839, he was awaiting the action of the government respecting the pension to be granted him in case he would publish his process.

"I immediately wrote to my brothers, the editors of the New York *Observer,* giving an account of this visit, and this letter was published by them some time, I think, in April, 1839. So far as I know this was the first public statement of the discovery in America. In July and August of the same year Daguerre received his pension and the process was published. After my return to New York I received a copy during the latter part of August, and immediately I had made for me the apparatus as described in the book. When this apparatus was completed I commenced experimenting, and soon verified the truth of Daguerre's revelations.

"The first experiment crowned with any success was a view of a Unitarian church on Broadway, taken from the third-story window of the New York City University. It was in September, 1839. I then immediately experimented with a view to make portraits, and my first attempts were on the roof of a building in the full sun-light. My subjects were my daughter and some of her young friends. Of these I still have portraits, made in October, 1839. At this time Professor John Draper was making experiments in the same direction, and also others who had received a copy of Daguerre's first book. I cannot say, there-

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fore, who made the first daguerreotype portrait in America, though I believe this country has the honor of making the first."

Mr. John Johnson (of the firm of Walcot & Johnson) exhibited before the Mechanics' Club, April 14, 1858, a daguerreotype portrait which he states was made on the 7th of October, 1839.

Messrs. Morse, Draper, Johnson and Prosch all lay claim to making the first daguerreotype portrait, and the testimony of either of these gentlemen, without a knowledge of the affirmations of the others, might appear quite sufficient to award either of them the honor they claim.

Quickly following these were Drs. Bierd, Godard, Wildman and Parker; Messrs. Reed, Cornelius, Mason and Professor Johnson. All these were citizens of Philadelphia, and the last named (Professor Johnson) was the first, no doubt, who took a daguerreotype portrait in that city. It was a likeness of Dr. Kenedy, the Principal of the Polytechnic Institute, and taken some time during the year of 1839.

In 1845–46 Frederic Langenheim was generally acknowledged to be the most successful practitioner of the art, and following him were Messrs. Van Loan, Mayall, Plumb, Simons and Root. Of all the cities in the Union, Philadelphia appears to have been the most noted for its distinguished daguerreotypists. It is worthy of note, that the name of no distinguished artist appears among these experimentalists. In fact, the practitioners of high art entirely ignored photography, and yet it has proved to be a greater help to their profession than to any other. The apparent simplicity of making sun pictures led a great variety of talent to engage in the business. Many believed it was a field in which there was but little labor, and much profit; that it required neither capital nor brains, and was just the kind of work for those who had failed in every other enterprise. Hence mechanics and traders of all kinds, as well as those of the learned professions, were soon found exploring its mysteries. It was commonly believed that this art was within the reach of almost any class of workers, and thus it was more rapidly developed than it might otherwise have been; for the mechanic soon learned how he could make many improvements in its mechanical devices; the chemist, how he could add new compounds with great advantage; the trader how he could attract public attention, and the optician how he could construct lenses that would make his name famous for all time to come. Thus this great variety of talent soon became classified, and so specialists were developed in every branch of photography. Hence we have now in every well organized gallery a positionist, a chemist and a mechanic, all experts in their several branches. This division of labor is no doubt a great advantage to the patrons of the art, as they thus get better work for less money; and it is also an advantage to those who invest their capital in the business, as it is only the combination of money and skill that can insure success. The day is past when the jack-of-all-trades can make photography a means of support. And so fifty years of unceasing progress has convinced the most skeptical that photography has come to stay, and will continue to win the approbation and support of the public.

In 1840 the daguerreotype art was first practiced in New York City as a business. During this year Mr. J. Gurney was the most conspicuous. He was soon followed by Messrs. Van Loan, Lawrence, Burgess, Brady, White, Beckers, Anthony, Edwards & Co., Plumb, Lewis & Holt, Haas, Insley, Thompson, Gardner, Bogardus, Meade Brothers, Fredricks, Anson, and Harrison & Holmes. There may have been others whose names have escaped my memory, but a large majority of those mentioned no daguerreotypist will be likely to forget who came in competition with them, for they were the giants of their age and generation, each contributing something to the development of the art that can never be forgotten; for these contributions combined formed the foundation of all subsequent progress and success. These men, or a portion of them, after some ten or fifteen years' practice in this first dry-plate method, turned their attention to the collodion process, and a few of these pioneers have followed up the art through all its changes to the present hour; and some of these are with us to-

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night, and will, no doubt, add their mite toward the entertainment of the hour. We have with us to-night of these, Messrs. Gurney, Beckers, Bogardus and Gardner, all of whom have promised to contribute their mite toward the entertainment of the hour. Hence, where a number are expected to take part in the programme of the evening, it would be *inapropos* for me to consume the time with any elaborate paper. I will, therefore, simply relate an incident or two, and then give place to others more competent both to instruct and to entertain.

During the early days of my daguerreotype practice I had a business circular printed, and among other things were the words: "Instruction given in the Art." What presumption! What did I know of the art? What did any of us who were then engaged in the business know about it? Even the best of us scored more failures than successes. And with *us* every picture was counted a success that was accepted by our patrons; and that this success might be made doubly sure, we were always careful to have our pay in advance. This of course we regarded as a simple preservative of our good nature, and a means of maintaining our equilibrium in case our customer failed to perceive and duly appreciate our labors.

A few days after issuing the circular referred to, I called on one of my neighbor daguerreotypists on Broadway. He at once began to chide me, not for my presumption in assuming the rôle of teacher, but for thus trying to increase competition in the art. He affirmed that the practice of the art was a secret, and for our own protection should be kept to ourselves; and then boastingly asserted that there were already too many in the business, and that his establishment, without the aid of another in the city, could make all the daguerreotypes New York demanded. My reply was, that what he said might be true, and yet I must differ with him in regard to keeping the art a secret. In my judgment it was good policy to induce as many as possible to invest their time and money, and so make them co-laborers with us in attracting public attention and thus aid in creating a greater demand for our services. Or, in other words, the more money and brains we could bring to bear upon the art, the more assured would be our success. But with all the arguments I could bring to bear on this question, I am quite sure I failed to convince him, for to-day he is as secretive as ever and continues the old cry: "Too many in the business."

In this endeavor to justify myself in advertising for pupils, I became thoroughly convinced of the truth of my position, and I have seen no good reason to abandon it up to the present hour.

I therefore hail with pleasure the rapid growth of amateur photography throughout the world, and expect from it, as in time past, the most useful and entertaining literature, the most valuable scientific discoveries, the most skillful applications of high art, and the highest social conditions due to the profession.

PHILADELPHIA EXHIBITION.

During this exhibition, which takes place April 8th to 20th inclusive, there will be special lantern exhibitions every Tuesday and Thursday evenings at eight o'clock, in the Lecture Room of the Academy of Fine Arts. Admission to these lantern exhibitions will be by special ticket.

The Board of Judges of the Exhibition consists of Messrs. John C. Browne, George W. Hewitt, James B. Sword, Xanthus Smith and Frederick B. Shell.

The foreign exhibitors have sent thus far over 180 prints, and American photographers have entered over 440 frames—many of the frames containing quite a number of pictures.

Professor S. W. Burnham, of the Lick Observatory, has sent some fine photographs of the moon—the largest ever taken, about which our readers already know through the excellent prints published in the Bulletin. He also sends

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some fine interior and exterior views of the observatory, and surrounding mountain scenery.

Among the foreign exhibitors from whom pictures have been received are the following:

Frank M. Sutcliffe, of Whitby, Yorkshire, England; and John Patterson Gibson, of Hexham, England, both of whom were awarded prizes at the Joint Exhibition at Boston, in 1888. Mr. Sutcliffe received two awards for best landscapes and animals.

Arthur R. Dresser, of Kent, England; G. West & Son, Southsea, England; W. W. Winter, Derby, England; W. C. Harvey, Gosport, England; Alfred Stieglitz, Berlin, Germany; Harry Symonds, Portsmouth, England; Mr. and Mrs. W. J. Anckorn, Arbroath, Scotland; James Brown, Newcastle-on-Tyne, England; Richard Keene, Derby, England; Paul Lange, Liverpool, England; Charles Edw. Wyrall, Aldershot, England; W. H. Geddes & Son, Arbroath, Scotland; Harry Tolley, Nottingham, England; Dr. P. H. Emerson, Suffolk, England; Konstantz Krzyzanowski, Turbow, Russia.

PHOTOGRAPHING THE NAVAL PARADE.

We learn that Mr. F. C. Beach has secured for the Society of Amateur Photographers and friends the commodious steamer Philadelphia, which under his direction will occupy the best positions for photographing the interesting Naval Parade which is to take place on the 29th of this month. The number is limited to 200, and tickets will be sold only to members at $1.50 each. The steamer will probably leave the pier foot of East 31st street at 9.30, and at Pier No. 27, East River, near Peck Slip, at 10 A.M. There will be no postponement on account of the weather.

OUR ILLUSTRATION.

The utility of orthochromatic photography is becoming more and more apparent day by day as new workers enter this field of photographic research and develop some new phases of the art. There is probably no photographic investigator that has so persistently labored to obtain good results in this line as our esteemed correspondent, Dr. H. W. Vogel, and the results he has achieved speak more than any words of ours for the success of his labors. In the present illustration to the Bulletin we give an example of some of his latest work. It is very evident on looking at the prints that the eoside of silver plate gives some very remarkable and extremely desirable results. The wonderful detail of both foreground and distance in the lower print is a result hitherto unattainable except with orthochromatic plates. Those of our readers who are interested in landscape work will be charmed with the results obtained with eoside of silver.

I would not be without the Bulletin for a good deal. The "What Our Friends Would Like to Know" department is worth the full subscription.

S. T. Bartlett.

The Bulletin is an ever-welcome assistant to me, every number seeming to be better than the last, if that be possible; and the more I see of the publication the better I like it.

J. L. Tait.

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ANTHONY'S
Photographic Bulletin.

EDITED BY

Prof. C. F. CHANDLER, Ph.D., LL.D.,
Aided by ARTHUR H. ELLIOTT, Ph.D., F.C.S.
and a corps of practical assistants.

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E. & H. T. ANTHONY & CO., Publishers.

AMERICAN INSTITUTE — PHOTOGRAPHIC SECTION.

INFORMAL MEETING, MARCH 20, 1889.

Vice-President J. B. GARDNER in the chair.

Mr. O. G. MASON exhibited and explained a very clever device for shading the lens when taking flash-light pictures.

This was followed by a talk concerning photographic literature. (As the reporter was requested not to mention the names of some of the speakers, they are here purposely omitted.)

The first speaker said "that the books, in his experience, had often led him into trouble, and he had frequently found them a snare and a delusion."

The second speaker said, "He seldom read a photographic book, and that he mostly depended upon his own experiments to win success. He had but little faith in the statements of his competitors when they told him how he could make just as good work as they did; that when he obtained anything valuable it did not often come by their suggestions, but by his own individual labor and perseverance. He had often noticed, too, that such of these as were in the advanced guard, and had won the highest reputation, usually exercised the greatest amount of caution and secretiveness, and were not apt to publish the methods of working by which they had achieved their greatest success. And this was true of amateurs as well as professionals; for often the lover of fame was no less secretive than the lover of money. If this class published anything, it was usually formulas they had long since abandoned for something better. Hence publishers found it difficult to record the latest and most approved methods of working; especially if they expected to fill their pages with voluntary contributions. A better photographic literature, or one more reliable under existing circumstances, could hardly be expected.

The Chairman said: "It was no doubt true that books sometimes prove a snare and a delusion, not because they are erroneous in their statements, but because they often leave some portion of the process to be discovered by the presupposed knowledge and judgment of the reader. The same thing often happens in oral statements. For example, an expert operator tells me he makes his silver bath by dissolving in ordinary croton water forty grains of silver in each ounce required that has been previously acidified. Such a statement is so different from my method of procedure that I am at once inclined to believe that he is purposely leading me astray. And the chances are that I do not follow his advice, or, if I do, I am more than ever convinced of his deception, because I have tried and failed. Yet what he said was true, and it was my fault in not being successful. I failed simply because I used only the small amount of acid required in purified water, or water in which the organic matter has been precipitated. If I had used sufficient acid to hold the organic matter in suspension, I should have been successful; and instead of condemning my friend I should have thanked him.

"As regards amateurs being as secretive as professionals, much depends upon the intent as to how they shall win the greatest fame. If their object is simply to make better pictures than any of their compeers, they may be secretive concerning their methods of working; but if they wish to obtain fame by their superior knowledge of the art, their chief motive of study will be that they may publish the results of their labors. There are numerous examples of both these classes, and both reap their legitimate reward.

"In spite of all exceptions that may be taken

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to the usefulness of photographic journals, it cannot be denied that they perform a good service by means of their advertising columns; for they aid greatly practical photographers in procuring the most approved apparatus, and the means of working the most successfully. If it were not for these advertisements the probability is we should have no photographic journals, and until photographers demand something better in way of literary matter, and are willing to pay for it, any changes for the better can hardly be expected.

"Now, although there may be many things stated in these journals that have been written from theoretical standpoints, or by those who have obtained their information from unreliable sources, yet this is no valid reason for never looking into these books; for if nothing else is gained, the reader will thus increase his vocabulary of language and so improve his own writing or speech in matters especially pertaining to his profession.

"Few photographic books from the beginning of the art have escaped my notice, and I think I can truthfully say, 'There are none so good some blemish doth not blot; there are none so bad some good redeemeth not.'

"For a number of years it was my habit to keep these books, and am only sorry that I did not continue this practice to the present time.

"We have, however, one member of the section, Mr. O. G. Mason, who I believe has kept up this practice, and hence, no doubt, has a larger collection of photographic books and journals than can be found in any of our public libraries. It is to be hoped that after his death and when his will is read, that it will be found that the Photographic Section of the American Institute is the rightful heir to this portion of his estate."

The Chairman announced that at the next regular meeting, April 2d, there would be a lantern exhibition of "The Open Air Statuary of New York City," by Mr. Charles Simpson.

The section then adjourned.

CLINTON HALL, 19 ASTOR PLACE.

Regular meeting, April 2, 1889, *President* H. J. NEWTON in the chair.

The *Secretary* reported the receipt of the usual journals and papers contributed to the Section.

The Chairman of the Executive Committee reported that the subject of the evening was "The Open Air Statuary of New York City," by Mr. Charles Simpson, illustrated with the stereopticon by A. D. Fisk, Esq. He also stated that an opportunity would be given to any persons present to make such comments, after Mr. Simpson's description of the statues, as in their judgment might be apropos to the occasion.

He also announced that an informal meeting would be held in the Trustees' room of the Institute, Wednesday evening, April 17th, to which all interested in technical photography were cordially invited.

President NEWTON then introduced Mr. Charles Simpson, who, after a few preliminary remarks, proceeded to describe the statuary as presented to the audience, confining himself mostly to the date when the statue was unveiled, where it was located, by whom it was erected, and the artist who designed it, together with a brief outline of his life and public work, the substance of which has already been published in the report of the January meeting of the New York Society of Amateurs, in the record of their proceedings.

Mr. Simpson, by his animated and pleasing descriptions, kept his auditors in the best of humor, and easily held their attention, from the beginning to the close, by the excellence of his work.

Mr. O. G. Mason followed with some very apropos remarks respecting the obligations of the Section to Mr. Simpson for his labor of love, and offered a resolution that the large audience present tender him their sincere thanks. This resolution was unanimously and loudly responded to in the affirmative.

The Chairman then introduced the sculptor, Mr. Wilson Macdonald, who occupied the remaining portion of the evening in relating a number of amusing reminiscences, and in enumerating some of the reasons why we did not have better open air statuary, and why we were so far behind the old world in this regard. He also endeavored to show how we might overcome these defects, and in course of time develop an artistic force that would eclipse the most brilliant and praiseworthy work of the past.

A vote of thanks was tendered to Mr. Macdonald for his very entertaining and instructive discourse, and on motion the Section then adjourned.

CASE SCHOOL CAMERA CLUB (CLEVELAND).

AT the regular meeting, Friday afternoon, March 22d, the demonstration of the development of a negative with hydroquinone was very well illustrated by Mr. Lafayette D. Vorce photographing the members before the

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meeting and developing the plate during the meeting. Although the day was dark and the time was late the negative obtained was first-class.

The Rev. Dr. Tenney exhibited to the members some handsome 5 x 8 views of Cleveland and vicinity.

At the next meeting (April 5th) a demonstration of amateur dry plate making will be given by MILTON B. PUNNETT.

WILLIAM T. RYNARD was elected an Active Member of the Case School Camera Club at the regular meeting, Friday afternoon, April 5th. The subject to be demonstrated was "The Making of Dry Plates," by Corresponding Secretary Punnett. It included, besides the modes generally followed by the amateur, an explanation of the process as conducted by the manufacturers. The solarization of plates, caused by an extremely long exposure, was also discussed. The subject for next meeting will probably be a demonstration of the aristotype paper by one of the members.

MILTON B. PUNNETT,
Corresponding Secretary.

ST. LOUIS CAMERA CLUB.

ST. LOUIS, MARCH 5, 1889.

THE meeting of the St. Louis Camera Club was called to order at 8.30 P.M., by *President* BAIN, with thirteen members present.

The minutes of the last meeting, February 19th, were read and approved as read.

Messrs. Joseph Berend and George W. Boswell having received the total vote of the members were declared duly elected.

Secretary BUTLER—I received a letter saying that the set of slides known as "The Boston Illustrated Slides" would be sent here after going to San Francisco.

A telegram, dated Greensburgh, Ind., was received from Mr. Charles W. Melcher, saying that he could not be in St. Louis in time for the meeting, and asking that the reading of his paper be postponed two weeks.

President BAIN—I suggest that Mr. C. H. Holland and Mr. H. B. Alexander prepare papers to be read at the next meeting.

Secretary BUTLER—I thought it might interest the members to know how the Club stands financially, so I have figured it out and I find that the balance in the treasury is $197.70.

A short discussion took place as to the relative merits of the different kinds of powders for making flash-light photographs, and it was found that most of the members who had tried the different kinds preferred pure metallic magnesium powder, and those who had tried the different ways of lighting the powder preferred blowing it through a flame to lighting it on paper or gun cotton, as there was less waste of the powder.

Mr. Bain exhibited a magnesium flash-lamp to be used over a gas-burner, which was very simple in make but worked very well.

Dr. Keith also exhibited an alcohol flash-lamp, which was very good.

Mr. BLATTNER—Those members who are interested in the toning of blue prints will find this a very good formula:

Take 70 grams of borax, 1,100 cubic centimeters of water, drop sulphuric acid into this until blue litmus paper turns red, and then add ammonia until red litmus paper turns blue. Add 10 grams of catechu and stir until dissolved. The prints are immersed in this solution and left in it until toned as desired. The more ammonia there is in the solution, the darker the high lights become.

The meeting adjourned at 9.15 P.M., after which the slides of the Pittsburgh Amateur Photographic Society were exhibited, some of which were very good. After the exhibition of slides had taken place, two flash-light exposures were made; one with Mr. Bain's lamp, which made a very good negative, and one with Dr. Keith's, which made a fair negative.

MARCH 19, 1889.

THE meeting was called to order by *President* BAIN at 8.35 P.M., with seventeen members present.

Applications for active membership from Messrs. Henry Hitchcock, Jr., and Frank J. Hickman, were read and referred.

Secretary BUTLER called attention to the fact that at the next meeting the annual election of officers for the ensuing year will be held and reports of the various committees read.

The *President* called upon Mr. Melcher to read the paper he had prepared on sepia platinotype printing.

Mr. MELCHER—I have here a tin box for preserving platinotype paper, which it is necessary to have dry in order to make prints. The platinotype paper is much more sensitive than silver paper. In preparing the developer take 4½ ounces oxalate potassium to 16 ounces water for black prints. When making sepia prints add 1½ drachms of the sepia solution to 1 ounce of the oxalate solution. When the paper comes by mail it is put up very carefully and wrapped in oil paper to keep out the

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moisture. It comes in sheets about 18 x 22 and costs thirty-five cents per sheet. One sheet will cut up into 12 pieces for a 5 x 7 negative, and it is prepared clear out to the edges, so that there is no waste. After developing the prints, filter the oxalate solution, and it can be used over again by adding an equal quantity of fresh oxalate solution to it. The paper should be rolled with the prepared side out. If you roll it the other way it will make air bubbles on the print in floating. The paper in mailing is generally rolled the reverse way, and it is natural that it should be rolled the other way to be used nicely. The sepia paper is much more sensitive than the black.

After the prints are developed in this solution they are placed prepared side downward in a solution of muriatic acid about one part in sixty. Repeat this two or three times in fresh solution of acid and leave the prints about ten minutes in each bath. After thoroughly washing in three or four changes of water they have only to be dried to be finished. The prints can be corrected to a certain extent. If they are under-exposed, have the developer very hot, and if they are over-exposed have the developer cooler.

Mr. Melcher developed a number of prints while explaining the process.

A letter from Mr. Achterman, dated Cincinnati, was read by Fr. Charropin, saying that he had found a new printing paper which worked something like platinotype paper, but all that was necessary was to make the print and wash it in water to develop it.

Secretary BUTLER—Mr. Sherrard has authorized me to say that if any of the members desire the platinotype paper from Willis & Clements, he will obtain it for them and also the sepia toning solution.

Considerable discussion took place as to whether the Club would continue holding two meetings or have but one meeting per month, and it was finally decided upon motion of Dr. Keith to continue the two meetings per month, and that the first meeting of the month be devoted to business and the second be a social meeting for the discussion of photographic subjects.

Upon motion of Mr. Charles Holland, the Secretary was authorized to insert a notice of the Club meetings in two of the daily papers in addition to the regular notices sent by mail to the members of the Club.

MR. ALEXANDER (Chairman of the Lantern Slide Committee)—The Philadelphia Amateur Photographic Society withdraws from the Association this year, and the New Brunswick, N. J., Club is admitted to the Association. At the annual election of managers the result was the election of Messrs. Bullock, Beach and Rau as manager and assistants. I also had a communication from Mr. Beach, in which he states that the English lantern slides will reach here in the latter part of April.

Upon motion of Mr. Blattner it was decided to exhibit the lantern slides at the meeting held on the third Tuesday of each month and that the papers be read at the first meeting of each month.

Upon motion of Mr. H. B. Alexander the President of the Club was authorized to appoint an Assistant Secretary to assist the Secretary under his direction in any way that the Secretary required in getting out notices and such work as the Secretary was in the habit of getting out himself.

The meeting adjourned at 9.50 P.M.

WILLIAM BUTLER, *Secretary.*

NEW ORLEANS CAMERA CLUB.

THE regular monthly meeting of the Camera Club was held February 20th, at Tulane Hall, *President* H. T. HOWARD in the chair, Mr. CHARLES H. FENNER, *Secretary*, and twelve members present.

A communication from Mr. F. C. Black, acting manager of the American Lantern Slide Interchange, was read requesting the New Orleans Camera Club to select one of its members as a delegate, who shall constitute one of a Board of Directors, which, on the 1st of March, organizes and elects, from among themselves, an Executive Committee of three.

President H. T. Howard was elected delegate.

A vote of thanks was unanimously tendered Messrs. E. & H. T. Anthony, of New York, for a very handsome volume of Anthony's BULLETIN.

Mr. P. E. Carriere was elected Librarian for the Club, and Messrs. H. Carpenter and P. E. Carriere appointed a Committee to purchase a book-case.

Mr. Horace Carpenter was tendered a vote of thanks for the insurance of the lantern free of cost.

The report of the Treasurer for the Given benefit was read and approved, and showed gross receipts, sale of tickets, $329.25; expenses, $54.25, leaving a net balance of $275. The amount is to be presented the widow of the hero, James Given, by the President, as the contribution of the New Orleans Camera Club.

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A vote of thanks was unanimously tendered the *Picayune*, *Times-Democrat*, Garcia & Fauche, Kuntz Son, the Orpheon Francais, and the ladies and gentlemen who contributed to the success of the entertainment.

Messrs. P. M. Westfeldt, C. F. Low and R. H. Palfrey were elected active members, and Mr. C. P. Richardson a corresponding member.

Mr. J. A. Hinks moved that a lantern slide exhibition be given Saturday, the 23d, at the Cotton Palace, for the benefit of the Ladies' Unsectarian Aid Society.

The motion was carried, and Mr. Horace Carpenter, whose fund of humor is inexhaustible, has been chosen to describe the slides as thrown on the screen.

Mr. Carriere gives notice that at the next monthly meeting the by-laws be so altered as to admit ladies to membership free of initiation fees and dues.

On Friday, the 22d inst., the Club will give a complimentary lantern slide exhibit, the slides to consist of views contributed to the American Lantern Slide Interchange by the Photographic Society of Philadelphia.

The meeting then adjourned.

CHARLES H. FENNER, *Secretary*.

LOWELL CAMERA CLUB.

A REGULAR meeting of the Lowell Camera Club was held at Morrill's Studio, Central Block, March 19th. It was decided to hold the club meeting at this place during the season, and to keep the library in its present quarters. The Committee reported in favor of joining the New England Lantern Slide Exchange, as proposed by the Providence Club.

It was voted to postpone action upon the proposed exhibition of photographic work by this Club until the April meeting.

Mr. W. P. Atwood read the paper on the subject for the evening, "The Development of the Dry Plate." He presented the subject in such a way as to make the process clear to beginners, and gave many suggestions of practical value to the experienced photographer.

The membership of the Club now numbers forty-three. Several were admitted to membership at this meeting.

GEORGE A. NELSON, *Secretary*.

LYNN CAMERA CLUB.

AT a meeting of the Club, held Tuesday evening, March 26th, *President* W. H. DREW gave a demonstration of the process of toning "Aristo" paper, which, although not a new printing paper, has recently been prominently brought to attention as possessing some advantages over the ordinary silver paper which is sensitized by floating. In printing ordinary silver paper it is necessary to carry the tones somewhat beyond those desired in the finished print, as the toning process is a bleaching process with this paper, but the opposite holds true with aristo paper, the hyposulphite bath intensifying the tones beyond those observed when the print leaves the gold solution, and care must be exercised not to carry the printing too far.

After printing the paper is first washed in a small quantity of cold water to wet it thoroughly, and as the paper has a decided tendency to curl, it is best to carry through but a few prints, say three or four, at a time. It is then washed in at least three changes of lukewarm water, which may have a temperature of about 100 degrees F., or until all milkiness of the water has entirely disappeared. Aristo paper is sensitized by a collodion emulsion, and this preliminary washing is to remove the free silver before toning. The formula for the toning solution is as follows:

Sulpho-cyanide-ammonium solution (½ oz. to 24 ozs. water)	1 part.
Chloride gold solution (15 grs. to 24 ozs. water)	2 parts.
Water	3 "

The toning bath, unlike that for silver paper, should be slightly acid, and can be made so by the addition of a drop or two of sulphuric acid. If alkaline it will not tone. The toning has usually proceeded far enough when the high lights of the print show a bluish appearance, notwithstanding that the dark portion may have a decidedly reddish tint. Should the toning be carried too far the finished print will have a slaty color. The fixing bath is made as follows:

Hyposulphite soda	1 part.
Water	20 parts.

The bath should not be made much stronger than this or it will be apt to affect the film and injure it. Fix until the desired tone is attained and the reddish tint disappears from the high lights. From the fixing bath the print should be placed in washing water, and remain an hour or so. The advantages claimed for the aristo paper are that it gives more detail in the print than the floated papers. The sensitive silver on the floated paper exists as a thin film upon the surface, and the finer details of printing are destroyed by the processes of toning, fixing, and sub-

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sequent prolonged washing, whereas the aristo is flowed with a sensitized emulsion, and the details or finer shadings may be considered as extending to a greater depth and not so easily affected by the toning processes. The paper is also toned in less time than is needed for floated paper. Although burnishing improves the appearance of the print it is not as essential as in the case of the ordinary floated paper.

After the demonstration the Club voted to have an outing on Fast Day, April 4th, weather permitting.

At a January meeting it was voted to follow the example set by the Boston Camera Club, and other clubs, of illustrating their city by a set of lantern slides, the same to be accompanied by a descriptive lecture, and it was decided to give those clubs that desired it a glimpse of Ye Old Shoe Town, and also the two noted summer resorts of Swampscott and Nahant.

At this meeting a number of the members reported that they had negatives ready for reduction, and others signified their intention of contributing to the number.

Considerable interest was manifested by the members present, and after tendering its thanks to the President for the demonstration, the meeting adjourned until Tuesday evening, April 2d, when the Club will give a lantern slide exhibition. J. W. GIBBONEY,

Secretary.

ANNUAL MEETING OF THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

FIVE years ago, on March 28th, the Society was organized at Cooper Institute with a pledged membership of 30; last Tuesday evening, the 9th inst., at the fifth annual meeting, the Secretary's report showed the present membership to be not far from 240, with several applications awaiting action. Such a showing gives every assurance that the Society will increase in interest and membership as rapidly as the spread of amateur photography generally.

The President, Secretary and Treasurer read their reports on the condition of the Society. The Treasurer reported a balance on hand in the reserve fund of over $500, and the receipts and expenditures during the year reached nearly $4,000.

The Lantern Slide Committee made an interesting report of its work during the year and the great interest shown by members in exhibitions conducted by it. The Committee was re appointed by the President filling vacancies caused by resignations. It now consists of F. C. Beach, A. L. Simpson, Frank F. Cobb, H. N. Tiemann and Frederick Vilmar.

The following ticket was unanimously elected:

President, Charles W. Canfield; Vice-President, David Williams; Secretary, Henry T. Duffield; Treasurer, J. E. Plimpton; Directors, James H. Stebbins, Jr., Clarence S. McKune, H. N. Tieman, Frank F. Cobb, Louis B. Schram, William M. Murray, T. J. Burton, A. L. Simpson.

A few amendments to the constitution were adopted, following which Mr. E. P. Griswold spoke on the Ferrotype, giving its history and several useful formulas.

A full report of Meeting will appear later.

What Our Friends Would Like to Know.

N. B.—We cannot undertake to answer questions of a technical character except through the columns of the BULLETIN. *Correspondents will please remember this. No attention will be paid to anonymous communications.*

Q.—A. S. writes: Please tell me through the columns of the BULLETIN what I should do to obtain white high lights on aristotype paper. I tried to use it, and the result was the same as when old silvered albumen paper is toned—the whites have a sort of yellow, muddy appearance.

A.—There should be no trouble about obtaining clear high lights on this paper. You must use denser negatives than if albumen prints are made, to obtain the best results.

Q.—C. O. K. writes: Will you please inform me in your next BULLETIN if Pizzighelli paper comes prepared for immediate use; if so how long will it keep fresh?

A.—This paper comes prepared ready for use, and keeps indefinitely if preserved in the tubes containing chloride of calcium to keep it dry.

Q.—T. P. writes: Please tell me in your "Friend" column in BULLETIN how to convert an old ferrotype bath into a printing bath?

A.—Make bath just alkaline with ammonia; place in sunlight to precipitate organic matter; shake up well with china-clay, and allow to settle; pour off clear, and if bath is colored repeat the sunning and china-clay treatment a second time. After bath is clear, add chemically-pure nitric acid until just acid to test paper, and then enough silver nitrate to make up to proper printing strength. This latter can only be tested by making some specimen prints and judging from them if strong enough. Bath should be acid, not alkaline.

Q.—E. O. T. asks same question as above. The answer is the same.

Q.—L. R. writes: Is water condensed in iron pipes from a steam engine exhaust better or as good as melted ice, oil being used in the cylinder?

A.—We would not recommend water condensed from a steam engine for photographic

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purposes. If it does not contain oil, it will probably contain the products of the decomposition of oil.

Q.—L. P. S. asks same question as T. P. above. Answer is the same.

Q.—A. D. writes: What is the quickest process to make collodion enlargements on porcelain from a card-size negative? I am using the solar, but it is very slow, and so very troublesome this bad weather to get a print.

A.—Use any good collodion, a good silver bath and the wet plate process. Coat porcelain the same as for negative work; use a copying box to enlarge, and tone with sulphide of potassium.

Q.—C. A. P. writes: Will you please inform me to what specific gravity 65 corresponds on photographers' hydrometers for use in silver nitrate?

A.—The figures on a silver-bath hydrometer should read grains to the ounce. That is, 65 means sixty grains of silver nitrate to the ounce of water.

Views Caught with the Drop Shutter.

We are glad to note that Mr. William P. Buchanan, of Buchanan, Bromley & Co., Philadelphia, has joined the noble army of married men. We tender our thanks for cards for "At Home" lately received, and wish the happy couple much joy and a long life together.

From Toledo papers we note that Ezra H. Alley has had conferred upon him the degree of M.D. We congratulate Dr. Alley upon the well deserved honor he has received.

T. C. Moon, of Laconia, N. H., had a fire in his studio on March 20th, which damaged $1,500 worth of property. The insurance was only $800; hence his loss is considerable and we extend our sympathy.

The Newport Aluminum and Steel Company, of Newport, Ky., are making pure aluminum and aluminum alloys, for all kinds of purposes. The pure metal and its alloys are remarkable in possessing wonderful lightness, combined with properties not possessed by any other metals. This new industry is important.

Messrs. Gilbert & Bacon, the well-known Philadelphia photographers, have equipped a new studio at 1030 Chestnut street. The opening days were March 18th to 23d, inclusive. We hope that the reputation they have obtained in the past will be eclipsed by the successes of the future, and we honestly believe it will.

Sun and Shade, No. 7, is fully up to its predecessors in the value and beauty of its illustrations. This unique publication is a far greater success than we ever dreamed it would be. A photographic record of events with no letter-press is certainly an original idea in journalism, and its utility is now beyond question. In the latest number of *Sun and Shade* there are six photo-gravures and two photo-gelatine prints illustrating modern engravings, portraits of celebrated men, and among other interesting scenes the ice palace at Montreal, 1889.

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THE

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WE have made arrangements with the ***Cottage Hearth*** Publishing Company to present their Monthly Illustrated Magazine to all our subscribers **FREE OF CHARGE,** asking only 25 cents to pay the postage for one year. The ***Cottage Hearth*** is in its fourteenth year; it contains thirty-six pages of interesting family reading, music, household receipts, etc. It is larger in size than our Magazine and printed on fine paper, with clear type.

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THE superior qualities of this Burnisher consist: first, of first-class workmanship in its construction; second, the Roll can be turned back in a second from the Burnishing Tool, so that the Tool can be dressed or cleansed, and the Roll be immediately replaced ready for operation without having to handle hot plates, etc., as in the other burnishers.

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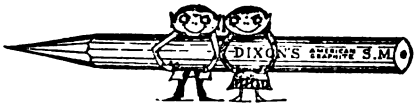
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are unequalled for smooth, tough leads, and are preferred by many Photographers and Artists to the imported Siberian leads.

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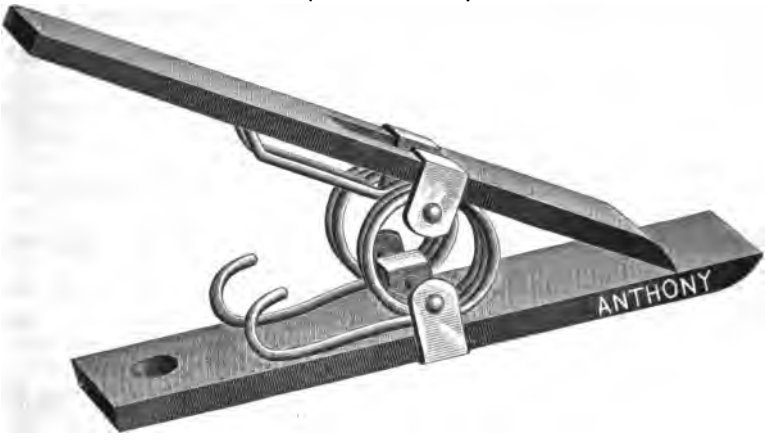
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CONTRIBUTIONS FROM THE BEST WRITERS.

EVERY PHOTOGRAPHER should subscribe for this newspaper, as it is published in the interest of the fraternity. **The most thoroughly independent Photo Journal in America.** It is not controlled by any Photographic Stock House. **The best medium for Advertisers in the United States**—be they Stock Dealers, Dry Plate Manufacturers, Photographers, Operators, or, in fact, any one having anything to bring to the notice of a Photographer or an Employee.

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Price of SUBSCRIPTION, payable in Advance.

One Year, - - - - - -	$2 50
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All Advertisements should be received by Friday morning. Make all Drafts, Checks, Express Orders payable to C. GENTILE. All Advertisements for Want Column must be paid in advance.

OFFICE OF THE EYE,

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THE COMING METAL,

is superior to silver and equal to gold in elasticity, durability, brilliancy and lustre for jewelry, ornaments, household utensils, dentistry and all kinds of machinery.

Why not investigate the cheaper production of soft steel and malleable iron castings without annealing? It only takes a postal for full particulars gratis.

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Only Manufacturers of Pure Aluminum in the United States.

$8.50 PER POUND.

High grade Aluminum Jewelers' Bronze, - - - - - - $2.50 per pound.
Nice Paper Weights of same, each, - - - - - $1.00, by mail, prepaid.

Pure Aluminum in all shapes and sizes of sheets, wire, plates, patterns, castings, etc.

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PERFECT! PYRO!! PRESERVATIVE!!!

When added to the Pyro Stock Solution it preserves it so that it can be used repeatedly, and also adds to the printing qualities of the negative. SOMETHING ENTIRELY NEW. WILL BE SOLD BY ALL DEALERS.

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SOLE TRADE AGENTS.

NO MORE BLANK SKIES.

WYLES'S CLOUD NEGATIVES.

The magnificent series of clouds and sky effects produced by Mr. Wyles are now offered to the profession in a practicable form and at a low price. They are unbreakable; can be sent through the post; are extremely transparent and quick printing; and comprise an infinite variety of the finest possible subjects.

Special medals have been awarded for these productions; they have been eulogized by the press and universally admired by artists.

The PRINTING is simplicity itself. The landscape, being sufficiently deep, is removed from its negative, and a suitable cloud negative being selected is adjusted to the sky of the print and placed in a printing frame. *Outside* the frame a piece of card-board or thick paper is fastened, it should be roughly torn to something like the outline of the landscape, and its edge should be turned up to admit of the gradual vignetting of the sky to the landscape. *On no account should sharp-edged cut-out masks be placed in contact with the view.* They are unnecessary and almost certain to be inartistic.

The negatives are best stored together in non-absorbent mineral paper, and protected between card-board. If by absorption of the transparent medium dry spots should appear, rub all over both sides with common vaseline and lay aside for a day or two, after well rubbing off with crumpled blotting paper the cloud negative will be found quite perfect again. If too moist in appearance, the clouds should be well rubbed with blotting paper before use.

PRICES.

5 x 8, each, - - - - - - - - - -	$0.60
8 x 10, " - - - - - - - - - -	1.00

FOR SALE BY ALL DEALERS.

E. & H. T. ANTHONY & CO.

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THE E A PYROGALLIC ACID

YOU CAN ALWAYS DEPEND UPON.



Recommended by

NEWTON, WARDLAW, COOPER AND ROCHE,

All of whom are known to every Photographer.

THE STANLEY DRY PLATE COMPANY,
THE CRAMER DRY PLATE COMPANY,
THE CARBUTT DRY PLATE COMPANY,
THE ST. LOUIS DRY PLATE COMPANY,
AND MANY OTHERS.

See that it has the E A Trade Mark.

Put up in 1 oz. Bottles. | Put up in 8 oz. Cans.
" 4 oz. Cans. | " 16 oz. "

ASK YOUR DEALER FOR IT.

Cooper's Concentrated Developer, which is found to work so well on all kinds of plates, is compounded with the E A Sublimed Pyro; also Anthony's Economical Developer, and Stanley's Concentrated Developer.

E. & H. T. ANTHONY & CO.,

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IMPORTANT ANNOUNCEMENT to all parties using Photographic Plain Salted Papers. That hereafter I shall prepare both matt and leatherized salted papers by an entirely new process, for keeping its primary color for several days after its being sensitized, it being excluded from light and sulphur fumes in the meantime; and the way to do this is to place it in tin tubes made nearly air-tight. Among its qualities are toughness, a superior matt surface, having a splendid tooth for all kinds of artists' work. For sale by all dealers.

JOHN R. CLEMONS, Manufacturer, 915 Sansom St., Philadelphia, Pa.

E. & H. T. ANTHONY & CO., Agents.

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JOHANN FABER'S SIBERIAN PENCILS,

FOR RETOUCHING.

WARRANTED PURE SIBERIAN GRAPHITE.

From HHHHHH to BBBBBB Hexagonal. Uniform price, - - $1.20 per dozen.
Single Pointed Artists' Holders, Hexagonal, - - - - - - - 20 cts. each.
" " " " Triangular, - - - - - - - - 25 cts. each.
Double Pointed Artists' Holders, enabling the Retoucher to use **Two Grades** of lead in **Same Holder,** Hexagonal, - - - - - - 30 cts. each.
Leads, to fit either of above, - - - - - - - - - - - $1.00 per dozen.
Retoucher's Outfit, containing **Five Pencils,** assorted grades, **Knife** and **Rubber,** in a neat box, - - - - - - - - - - Price, $1.00 per set.

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THE FINEST ASSORTMENT

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Lenses, Cameras and Photographic Supplies

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Outfits a Specialty

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Try McGOWAN'S DRY FERROTYPE PLATES

A Complete Success

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Unequalled for Speed and Fine Qualities,

FOR

LANDSCAPE, PORTRAIT AND INSTANTANEOUS WORK.

Full and Comprehensive Instructions for Working in Each Package.

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—THAT THE BEST—

HEINRICHS DRY PLATE GELATINE

Is ONLY MANUFACTURED in WINTER, and do not hesitate securing your supplies for the coming SUMMER.

To be had through Messrs. E. & H. T. ANTHONY & CO., New York; or direct from the manufacturer,

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FROM PHOTOGRAPHERS

A Large Lot of NEGATIVE GLASS—5 x 7, 6½ x 8½, 8 x 10.

Write to us, stating how much you have of each size on hand and how soon you could ship it. We will send you prices paid, etc.

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ABOUT N. P. A. ALBUMEN PAPER.

OUR friends will recollect that about a year ago we invited all the photographers of the country to send us any criticisms or suggestions they might desire to make on this excellent Albumen Paper, that we might send them to the manufacturer, whose aim it was to make it *as perfect as it was possible to do.*

The Paper seems to have given such entire satisfaction to the most eminent photographers in the country that we believe but one suggestion was received, which was promptly forwarded to Dresden.

This is the most *satisfactory* evidence of the superiority of the Paper, and is of more value to guide photographers than if we were to advertise on our own account that it is "ahead of anything in the world."

We certainly believe that it is better than any other, in the *chemical preparation of the Albumen* and in the care with which the first quality is *selected.* It is very easy to make paper a few dollars less expensive to the ream by leaving in defective sheets, but it is *not really cheaper to the photographer.*

The next important point for the photographer to know is how he can be *sure* he gets the right paper in these days of counterfeiting brands. He will be sure in this respect by looking *through* the paper for the *water mark* N. P. A., *which cannot be counterfeited;* while a *brand,* as we said last year, can be put on "while you wait."

The *best is always the cheapest,* when you need it to *use;* though it may not be, if you merely wish it to *sell.*

Photographers will find that some parties will charge them the same price for *inferior papers* that they do for the N. P. A., and will try to persuade them that the other is "just as good." It *is* just as good—and better, too—for them to *sell,* because they make more profit on it; but the photographer who *uses* it will not find it so profitable as he who *sells.*

E. & H. T. ANTHONY & CO.,

591 Broadway, New York.

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IMPORTANT TO EVERY PHOTOGRAPHER,

PROFESSIONAL OR AMATEUR.

We call your attention to these *facts:*

First. That we make it a *specialty* to *manufacture* and *import Chemicals* for use in the *Photographic Art.*

Second. Such as we *manufacture* we are very careful in preparing *especially* for the wants of the *Photographer*, that each and every article we put on the market shall be of the best.

Third. Articles of a *chemical* nature which we import are *thoroughly tested* at our *Factory*, and only such as are *reliable* in every respect for *Photographic use* are offered to the trade.

Fourth. The *almost entire control* of the American Market, which we have enjoyed for over a *quarter of a century* in the sale of Collodions, Varnishes, Cottons, etc., attests the *superior* quality of *our preparations.*

Fifth. Whatever chemicals or chemical preparations you need order as E. A. and see that the *trade-mark* is on each package or bottle, as it is a *guarantee of purity.*

Our chemicals and preparations are kept in stock by all responsible dealers in Photographic goods in the United States.

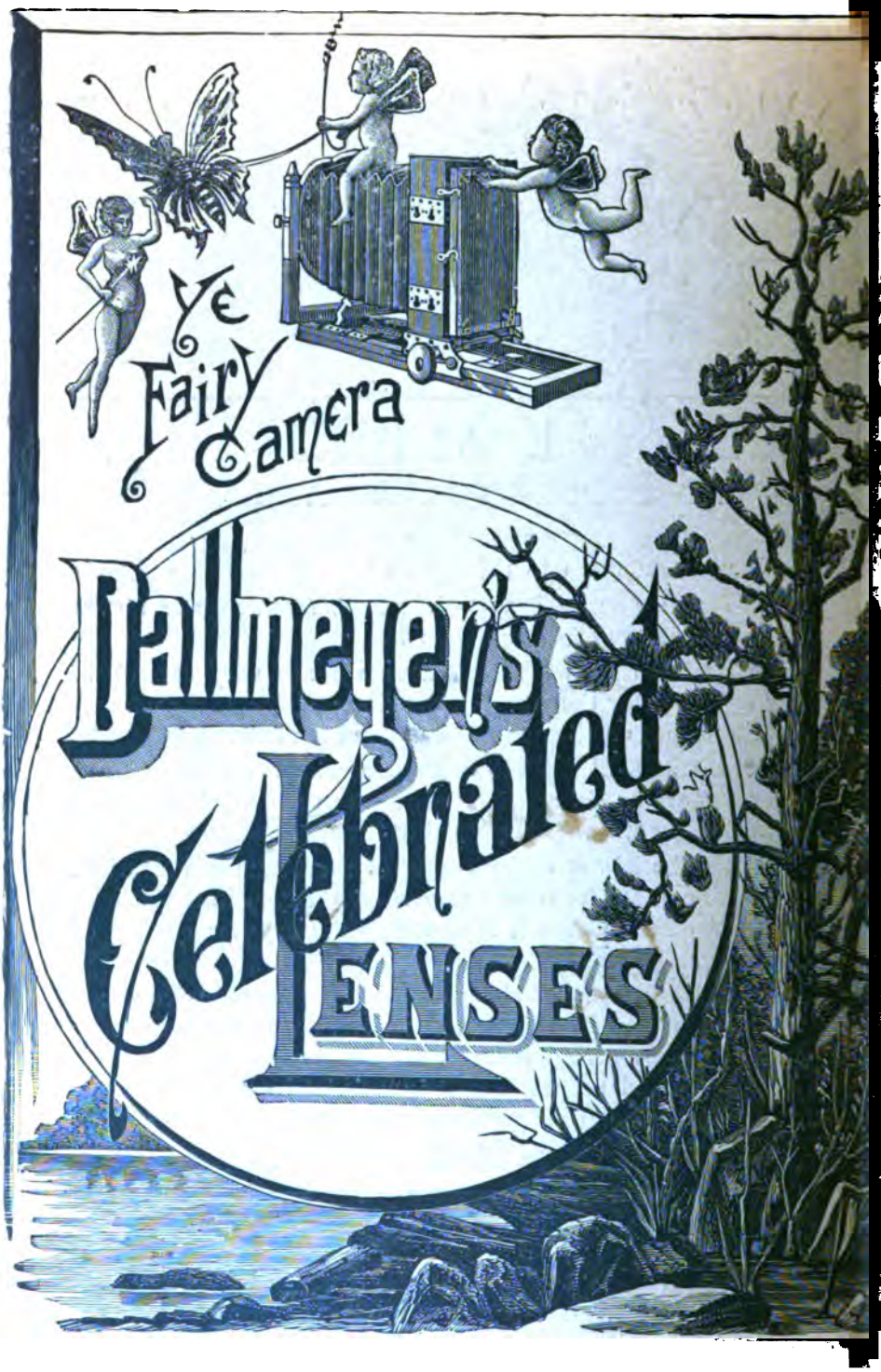
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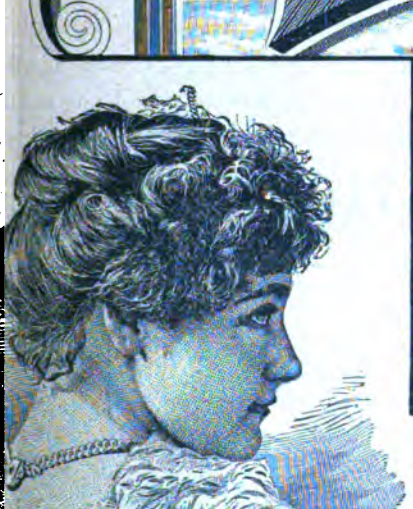


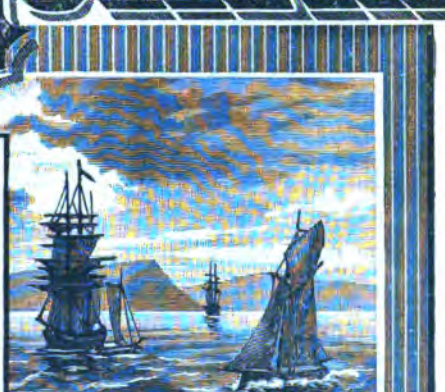
For the Amateur and the Profession

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Vol. 20. April 27, 1889. No. 8.

ANTHONY'S Photographic BULLETIN





Edited by
PROF. CHAS. F. CHANDLER, Ph.D. LL.D.
Prof. of Applied Chemistry in the School of Mines,
COLUMBIA COLLEGE, NEW YORK CITY.

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TRANSPARENT AND FLEXIBLE.

For Portraits, Landscapes and Drop Shutter work. **Weight and Space reduced to a minimum.** Fourteen dozen Films weigh less than one dozen Glass Plates. They are developed in the same manner as Dry Plates. They reduce halation. They can be printed from either side of film.

ANTHONY'S CLIMAX NEGATIVE FILMS are made upon a substance of recent discovery, which is admirably adapted to the manufacture of a **Perfect Negative Film,** combining **Transparency, Strength** and **Toughness of Composition,** which renders them capable of being made so thin as almost to eliminate the question of weight and bulk in carrying. They are made with a **fine mat surface,** which **reduces halation,** and are **perfectly impervious to water.** Can be sent by mail without danger of breakage.

PRICES PER DOZEN.

3¼ x 4¼,	$0 65	5 x 7,	$1 65
4 x 5,	95	5½ x 7,	1 75
4¼ x 5½,	1 12	5 x 8,	1 80
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4¾ x 6½,	1 40	8 x 10,	3 60

All larger sizes made to order only, at fifty per cent. additional to price of plates.

Postage extra.

A TRIAL OF THESE FILMS WILL DEMONSTRATE THEIR PRACTICAL VALUE.

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E. & H. T. ANTHONY & CO.

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STANLEY DRY PLATE.

The Plates now being made in our new Factory are giving most excellent satisfaction, and we earnestly recommend those who wish to use

THE BEST PLATE MADE

to give them a trial.

STANLEY DRY PLATE CO.,

LEWISTON, ME.

FOR SALE BY ALL DEALERS AND BY

E. & H. T. ANTHONY & CO.

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The Only Real Helpful Article recently published on Photography appears in Scribner's Magazine for May. The author is Professor John Trowbridge; and a list of the Illustrations gives the best idea of the character of this article:

Photograph of candle taken by its own light.
Photograph by lamp-light, 20 seconds exposure.
Photograph on an unstained plate.
Photograph of same showing values of colors.
Photograph of burning building taken by its own light.
Photograph of surf higher than house.
Photograph of human eye, contracted pupil.
Photograph of human eye, dilated pupil.
Photograph taken through pin hole.
Photograph of same through a $50 lens.
Photograph of maple tree showing colors.
Photograph of a flash of lightning.
Photograph of successive attitudes of a man throwing stone.
Photograph of frog taken under water.
Photograph of human speech.
Photograph of surf at Hastings, England.

You will see that this is not the ordinary sort of amateur photography article which is so frequently published.

The May number sent on receipt of Twenty-five cents.

Also for sale by all Newsdealers.

Subscriptions, $3.00 a Year.

CHARLES SCRIBNER'S SONS, NEW YORK.

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LOW PRICE. HIGH QUALITY.

Heated in five minutes by Oil or Gas. Smoke discharged at ends. Adjusted by one screw to thickness of photo.

NICKEL-PLATED ROLL AND BURNISHING SURFACE.

SIMPLE, EFFICIENT AND ECONOMICAL.

Write for Circular and mention this Journal.

RANDALL & CO.,
520 West Sixth Street,
CINCINNATI, OHIO.

Price,	6½-inch,	with Oil or Gas Heater,	boxed,	- -	$8 00
"	10½ "	"	"	- -	12 00
"	15½ "	"	"	- -	18 00

FOR SALE BY PHOTO STOCK DEALERS.

C.B.

Combined Permanent Intensifier and Reducer

FOR

GELATINE PLATES.

SOMETHING LONG DESIRED.

An Intensifier which builds up the weakest negative to any degree of strength, with the perfect clearness of a wet plate, without the slightest stain, removing any trace of fog occasioned during development, and producing a brilliancy of result equaled only by that of a well-developed plate.

THE INTENSIFIED PLATES ARE UNCHANGEABLE BY TIME OR ACTION OF LIGHT.

Price $1 per package. For Sale by all Dealers.

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THOMAS H. McCOLLIN & CO.,

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RAPID RECTILINEAR, WITH IRIS DIAPHRAGM.

HENRY G. PEABODY,

DEALER IN

PHOTOGRAPHIC SUPPLIES,

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SOLE AGENT IN THE UNITED STATES FOR THE

WRAY LENSES.

Send for Catalogue.

NEW ENGLAND AGENT FOR THE

HOOVER PLATE.

CYRUS PROSCH'S NEW SHUTTERS

PROSCH RAPID,

DUPLEX STEREOSCOPIC,

DUPLEX DETECTIVE,

DUPLEX TRIPLE IMPROVED.



DUPLEX WITH SILENT TIME.

The Prosch Rapid is capable of making exposures so rapid as to test to the utmost the skill of the most expert operators to develop. It is only for instantaneous work, such as taking horses at most rapid gait; athletes running, jumping; divers, etc., etc. Although operating between the lenses it is entirely different from the Duplex. Made in two sizes: No. 1, 1-inch opening, price, $18; No. 2, 1¼-inch, $22.

The Duplex Stereoscopic fills perfectly the want of a time and instantaneous shutter for Stereoscopic work. It consists of two Duplex Shutters on one frame, operated by one lever and one release, and consequently gives two identical exposures. Made in two sizes: No. 1, ¾-inch opening, $18; No. 2, ⅞-inch opening, $19.50. Lenses are arranged at 3¼ inches from centers; but this will be increased, if ordered, up to 3¾ inches for $1 additional. Rotary Stops, $2; Flange Collars, when required, 75 cents. Silent time attachment, $1.50; combined with slow instantaneous, $2.

The Duplex Detective is a reliable, compact and efficient Shutter for Detective Cameras, which can be used for both time and instantaneous work. Release for instantaneous is by a push trip (pneumatic if desired). Time exposure mechanism is same as silent self-setting time to regular Duplex Shutters, by which instantaneous exposures can also be made by pressure to pneumatic bulb. Price, including fitting to Camera and Rotary Stops, $15.

THE EVER POPULAR DUPLEX SHUTTER still retains its lead of all others, whether of home or foreign production. The Rotary Stop is considered by an army of users an indispensable adjunct to the shutter, likewise the silent, self-acting time, and slow instantaneous attachment, which operates shutter by direct pressure of air through pneumatic device.

DUPLEX ENLARGED REVISED LIST.

Numbers.....	00	0	0A	1	1A	2	2A	3	3A	4	5	6	7
Openings, inch...	½	⅝	1	1¼	1⅜	1½	1⅝	1¾	2	2¼	2½	3	3½
Price.....	$11.50	$12	$12.50	$13	$13.50	$14	14.50	$16	$19*	$20*	$22*	$24*	$27*

* Including silent time attachment.

Rotary Stops up to No. 1, $1.50; above that, $2. We do not make Rotary Stops for sizes larger than No. 2A, except by special agreement. Silent time attachment same prices as Rotary Stops.

When Flange Collars are required, as on Ross and other lenses similarly mounted, 50 cents extra. Shutters can be furnished for most standard lenses, fitted ready for use, but it is to customer's interest to forward his lens tube with order, otherwise perfect fit is not guaranteed. These shutters are owned and manufactured solely by the Prosch Manufacturing Co. None genuine without our stamp. Circulars containing full information forwarded on application.

PROSCH MANUFACTURING CO.,

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THE "GEM CITY" CAMERA STAND

has stood the "test of time," and is now *universally* acknowledged the BEST CAMERA STAND ever introduced to the photographic trade. It is, without doubt, the most rigid and at the same time the easiest handled.



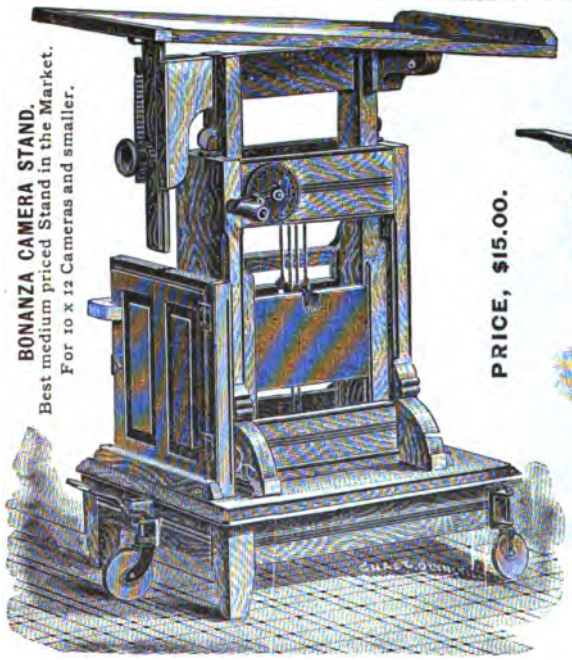
No strength is required to elevate the Camera, it being counterbalanced by weights sliding up and down on grooved guides; thus the Camera being as rigid at its greatest height as at the lowest, the center of gravity being always the same, which cannot be said of many stands in the market.

No. 1, for 4-4 to 10 x 12 cameras, 30-inch bed.....$22 00
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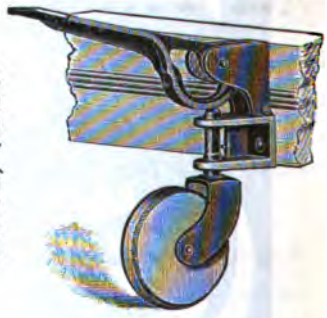
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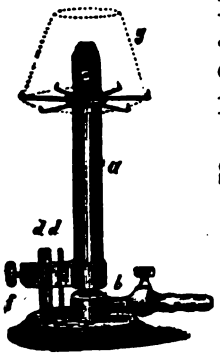
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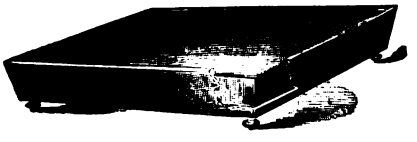


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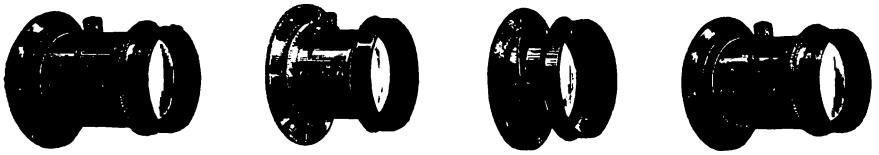
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Photographic Bulletin.

Prof. CHARLES F. CHANDLER, Ph.D., LL.D., *Editor.*
ARTHUR H. ELLIOTT, Ph.D., F.C.S., *Associate Editor.*

APRIL 27, 1889. Vol. XX.—No. 8.

THE PHILADELPHIA EXHIBITION.

"COME, draw this curtain, and let's see your picture."

Every year photography is becoming more important as one of the fine arts. Men of science, men of leisure, even artists that wield the brush and pencil, are all becoming fascinated with the delightful, the wonderful results obtained by the physico-chemical manipulations that produce modern photographs.

Any one who saw the handsome exhibition at Philadelphia will acknowledge the truth of the foregoing statement. On the walls of the beautiful building devoted to the fine arts in the Quaker City was to be found every conceivable application of photographic processes, by almost every kind of devotee to the art. The lover of the wild and roaring ocean there saw him in all his fury in the wonderful surf pictures taken in various parts of the world, and with a faithfulness to nature that brush or pencil could never attain. The storm-cloud and the effects of the howling wind surging over the landscape were also to be seen, caught with the accuracy that only the photographic lens can secure. There also were to be found the more restful scenes of nature, babbling brooks, silent pools with brooding branches sheltering nooks where the finny tribe love to nestle. For those who love the majestic and grand, the mountain peaks of Sweden and Norway, the snow-clad Swiss Alps, or the Rocky summits of our own Western Highlands, were all faithfully and wonderfully delineated upon the walls of the exhibition. The scenes of home life were also not forgotten; the fire-side, the children at play, the household pets, the nook in the study, the art corner in the drawing-room, each and all had its representative pictures. Even our homes, and the buildings we raise as monuments of ideas and the thoughts of our fellow men, together with machinery and the various applications of photography to the methods and investigations of science, were to be seen, and in such a manner as to call forth the admiration of the spectator.

As each of these yearly exhibitions of the three Societies (Philadelphia, Boston and New York) comes around we are more and more embarrassed in the wealth of good material that we are called upon to notice. In the present exhibition we have a marked advance over former years, both in the quality and also in the number of pictures exhibited. We are also very much pleased with

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the arrangement and display of the pictures, as seen at Philadelphia. This improvement is partly owing to the character of the building in which the exhibition was held. The Pennsylvania Academy of Fine Arts building is adapted to the display of pictures, and our Philadelphia friends were very fortunate in securing so good an exhibition hall. But what, in our minds, was a far more important factor in the admirable arrangement of the display, came from the painstaking and faithful labor of the Committee of Arrangements, especially Messrs. Bullock and Redfield. There is no doubt that to the labor of these gentlemen is due the very decidedly improved appearance of the walls, and the exhibition generally, over those of former years. There were no pictures below the medium line and none were given sky-room, which was the reverse at the two previous exhibitions. Of course something has been gained by the experiences of former exhibits; but mistakes are not always profitable, even to the managers of photographic displays.

Among the multitude of good pictures it is impossible for us to notice more than a few. We must confess that we saw much less poor work in this display than in those of previous years.

W. B. Post, of the New York Camera Club, had several excellent out-door portraits taken with foliage backgrounds, that were very effective and picturesque. One, a lady and gentleman standing by a fence in a field, was excellent.

J. L. Stettinius, of Cincinnati, had some exceedingly fine instantaneous photographs; one of the most perfect of which was a gentleman swimming with a laughing boy, entitled "On Papa's Back." "Pole Leaping" and "Yacht Pasque" were also very good.

John H. Tarbell, of New York, had some fine studies. "Darby and Joan," an old couple by a cottage door, was a fine composition; and "Two is Company," an old man and dog evidently much interested in each other, was equally good.

G. Harry Squires, of Plainfield, N. J., showed some gems of Catskill scenery with foliage work among the best in the exhibition. This latter effect was uncommonly fine.

A. G. Van Nostrand, of Boston Camera Club, had an excellent picture of Anastasia Light-house, Florida, which from its height (164 feet), and the peculiarity of the light in Florida, is a very difficult subject. Another good picture in this exhibit was "Foot of Rocks," Ausable Chasm, N. Y.

W. P. Atwood, of Lowell Camera Club, had four gems of scenery at Nantucket and Lake George, with particularly fine effects in the clouds. "Marblehead Rocks" and "Summer Afternoon, Lake George" were, in our opinion, the best of a fine exhibit.

George A. Nelson, of Lowell Camera Club, as usual, had an excellent exhibit. The beauty of the former work of this exhibitor is well maintained, and in some instances surpassed, in the present exhibition. "A Merciful Man," an ox team with an old and gentle looking driver, was a fine study; while the pictures entitled "Morning," "Noon" and "Evening" were scenes that would be the delight of any artist.

Edward Leaming, of the Society of Amateur Photographers of New York, had a fine exhibit which contained one picture of which he may be proud, Miss Lula M. Smith as Mary Queen of Scots. It was an excellent piece of work in every sense.

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Professor H. A. Rowland, of the Johns Hopkins University, showed some excellent views of Norwegian scenery that were very beautiful; but his masterpiece was a new series of photographs of the solar spectrum made with his concave diffraction gratings. These are the most perfect pieces of photographic work in this department yet attained, and place America in the front rank of spectro-photographic research.

We cannot now notice many other excellent pictures and reserve this pleasure for our next issue. On another page will be found the report of the judges.

EDITORIAL NOTES.

PROFESSOR ROWLAND'S new photographic map of the solar spectrum is one of the greatest achievements in modern scientific photography. It has been made by the use of his beautiful concave diffraction gratings, and covers the spectrum from the extreme violet to the red rays as far as wave-length 6,950. The scale is three times larger than the well-known maps of Angström. The map is made in sections and was on exhibition at the Philadelphia Academy of Fine Arts. The definition and clearness of the work exceeds anything hitherto attempted in this line.

FROM Ottomer Anschütz, the photographer of Lissa, Posen, Germany, we have received a print and enlargement of his photograph of a "flying cannon ball." This marvelous piece of photography was made at the Grosonworks, Buckan, on September 12, 1888. In the print the flying ball is perhaps the fiftieth of an inch long, and the enlargement (about six times) shows the projectile quite distinctly. The rapidity of flight was 400 meters per second, and the time of exposure was 0.000076 of a second. The print shows a well exposed negative, and the result is a monument to Anschütz' photographic skill and the marvelous sensitiveness of modern dry plates.

THE Society of Amateur Photographers have just issued a neat little pamphlet of their list of members, which contains some excellent views of their library, dark room and lecture hall. It reflects great credit upon the Board of Management and gives an excellent idea of the conveniences offered by the Society.

THE Lynn Camera Club are busy making views illustrative of their picturesque town and the surrounding suburbs. These are to be used in illustrating a lecture entitled "Ye Olde Shoe Towne," with lantern slides, after the manner of the Boston Camera Club. The idea is an excellent one, and will be a source of pleasure and profit to any of our camera clubs who would do likewise.

WE have just received the first Bulletin of the Associaziom degli Amatori di Fotografia in Roma, containing the Articles and By-Laws and a list of members. We wish them every success and hope that much good may result from the organization to the amateurs of sunny Italy.

THAT flourishing organization, the New York Camera Club, appears to be in full running order, and with this month commenced its regular Friday evening conferences. On the 7th inst. Lieutenant C. L. Bruns entertained the members and their friends with a paper on "Precise Photography," which appears

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in full in our columns. On the 12th Mr. H. J. Newton explained the theory and gave a practical demonstration of collodion emulsion making; on the 19th Dr. Piffard exhibited some new methods of dark room illumination, and on the 26th Mr. Alexander R. Black, of Brooklyn, will give a stereopticon exhibition illustrating many interesting phases of life as seen with the aid of a detective camera.

Mr. Newton's remarks on the preparation of collodion emulsions were thoroughly practical and included full working directions, thus enabling any one who will employ reasonable care in his manipulations to be almost certain of success. He said: First take 100 grains of bromide of cadmium and 50 grains of bromide of ammonium and dissolve them together in a small quantity of water. Then evaporate the solution to dryness. This will give you a mixed salt much more soluble in alcohol than its separate constituents. This mixed bromide salt is kept for stock. If, now, you wish to make two ounces of emulsion, take 20 grains of the mixed bromide and put it into a dark amber bottle with 1 ounce of alcohol (Atwood's). Agitate until the bromide is dissolved. Then add 100 grains of pyroxylin picked into small particles and let this soak in the alcohol for a few minutes, after which add 1 ounce of ether. This dissolves the pyroxylin and the salted collodion is now complete. This may be immediately sensitized (as was done at the meeting), but it is better to allow the collodion to ripen for a week or two, or longer, before sensitizing. When, however, you are ready to sensitize, weigh out carefully 32 grains of silver nitrate and pulverize it thoroughly in a mortar. This is then carefully transferred to a test tube and 16 to 18 minims of water are added. After a little agitation the silver will have completely dissolved. It should then be added, a few drops at a time, to the 2 ounces of ripened collodion and thoroughly shaken after each addition. When all the silver has been added the bottle is set aside in a dark place for twelve hours, at the end of which time four or five grains of pure fused chloride of calcium is added. The object of this addition is to convert the slight amount of free nitrate present into a chloride; for if any free nitrate were left in the emulsion the plates would fog. Plates thoroughly cleaned in the usual manner may now be coated with the emulsion and exposed while wet or may be allowed to dry. The emulsion itself, if properly protected from the light, will keep indefinitely. Mr. Newton recommended the following developer for use with this emulsion: Water, 1 ounce; carbonate of soda, 12 or 15 grains; bromide of sodium, 1 grain; and pyro, 3 grains.

Mr. Newton also explained the method of preparing collodio-chloride emulsions, and exhibited both negatives and positives prepared by this method, which for exquisite beauty we have never seen equaled.

As before noted, the Camera Club proposes each Friday evening to present attractive features to its members, and we understand that all persons interested in amateur photography will on these occasions be heartily welcomed.

REPORT OF BOARD OF JUDGES AT PHILADELPHIA.

THE Board of Judges appointed to make the awards of diplomas for work at the Joint Exhibition of the Society of Amateur Photographers of New York, the Photographic Society of Philadelphia and the Boston Camera Club, held at the Pennsylvania Academy of the Fine Arts, Philadelphia, April 8 to 20, 1889, re-

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spectfully report that they have carefully examined each exhibit, and make the following awards:

DIPLOMAS FOR SPECIAL EXCELLENCE.

1. For landscape or marine views—Harry Tolley, Nottingham, Eng., No. 524, "On the Lonely Shore."

2. For portraits—Frederick Gutekunst, Philadelphia, No. 303, miscellaneous portraits.

3. For genre subjects and figure compositions—W. W. Winter, Derby, Eng., No. 608, "My Mammy."

4. For work by Ladies—Mrs. S. M. Cleveland, Philadelphia, No. 311, entire exhibit.

5. For Enlargements—William H. Rau, Philadelphia, Nos. 340 to 343.

6. For Lantern Slides—Professor Henry A. Rowland, Baltimore, Md.

For applied photography—scientific or technical—Professor Henry A. Rowland, Johns Hopkins University, Baltimore, for photographic maps of the normal solar spectrum, second series, 1888.

DIPLOMAS FOR EXCELLENCE.

For Entire Exhibits—Frank M. Sutcliffe, Whitby, Eng.; William Parry, Shields, Eng.; J. P. Gibson, Hexham, Eng.; John Bartlett, Philadelphia; Charles L. Mitchell, M.D., Philadelphia; George B. Wood, Philadelphia; Paul Lange, Liverpool, Eng.; Robert S. Redfield, Philadelphia; Richard Keene, Derby, Eng.; Harry Symonds, Portsmouth, Eng.; S. W. Burnham, Lick Observatory, California; The Rev. F. C. Lambert, M.A., Cambridge, Eng.; H. A. Latimer, Boston, Mass.; A. K. P. Trask, Philadelphia; George A. Nelson, Lowell, Mass.; R. T. Hazzard, Philadelphia; Clarence B. Moore, Philadelphia; Mr. and Mrs. W. J. Anckorn, Arbroath, Scotland.

(Signed) JOHN C. BROWNE,
GEORGE W. HEWITT.
XANTHUS SMITH,
FRED. B. SCHELL,
JAMES B. SWORD,
Board of Judges.

PHILADELPHIA, April 8, 1889.

LETTER FROM GERMANY.

BY DR. H. W. VOGEL.

The cause of Black Edges on Old Gelatine Plates.—Testing the Quality of Black Cardboard.—Yellow Light for the Dark Room.—The Forthcoming Berlin International Jubilee Photographic Exhibition.—A New Developer.—Making Plates of a very fine Grain.

SINCE the introduction of dry plates numerous complaints have been made about the so-called edge-fog—that is, the blackening of the unexposed edges of the plate during development. On old plates this edge-fog reaches oftentimes a width of 1 cm., so that—particularly with smaller sizes—the whole negative becomes useless therefrom. The reason for this abnormal appearance was believed to be looked for in the defective cleaning of the edges of the plate. This may be true with such plates which show the black borders only on the old

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edges and not on those with a fresh cut. Although insufficient cleaning without doubt causes the origin of the borders, I must by reason of recent tests accept for certain, that, whenever the black border shows all around, the paper used for packing the plates is the principal cause of their destruction. Last summer I made the observation, that some plates prepared by me on new and carefully cleaned glass, wrapped up in black paper, showed only a few weeks later large black borders during development, while other plates prepared at the same time and with the same emulsion, which had remained in the drying box, had no trace of black edges. Lately I observed, that plates packed between cardboard showed no trace of decomposition where the cardboard prevented them from coming into contact with the black paper, while the unprotected parts showed a wide decomposed edge. This demonstrated to a certainty that impure matters contained in the paper were the cause of the spoiling of the plates. To prove this I boiled a piece of this paper for a few minutes in distilled water and added a few drops of nitrate of silver solution to the filtered liquid. The previously weakly yellow colored solution became at once brown from the addition of the nitrate of silver and after a short heating a black-brown sediment appeared which was after a further test recognized as sulphide of silver. Another part of the solution was mixed with a few drops of starch paste to which were added a few drops of iodine. Only after several drops of the iodine had been added the solution was colored blue by formation of iodide of starch. A very diluted solution of hyposulphite of soda treated with nitrate of silver and iodine solution respectively, showed the same reactions; the paper was therefore contaminated with hyposulphite of soda. Hyposulphite of soda is applied a good deal in the manufacture of white paper under the denomination of "anti-chlor," to counteract the chlorine used for bleaching the paper; and black paper is probably produced from waste paper whereby the presence of the hyposulphite of soda can easily be explained. But it should also be remarked that some coloring matters, for instance aldehyde-green, are produced with the aid of hyposulphite of soda and contain sulphur which has a decidedly damaging effect upon plates.

Recently I obtained cardboard of a black color, which turned the pictures yellow shortly after they had been mounted on the same. A closer investigation showed that the coloring matter was the cause of it. Such defective card mounts can easily be tested by making a fresh paste and mixing the same with five per cent. of acetic acid. The picture is then mounted. If the cardboard is pure, the picture will remain unchanged; if impure, the picture will have yellow spots within twenty-four hours. I recommend this test to every photographer.

Since about a year a yellow light for the dark room, introduced by Messrs. Gädicke and Miethe, the inventors of the flash-light, has met with much favor. It consists of a Bunsen burner, into which soda is introduced. The light is intensely bright; but as the Bunsen burner contains yet some blue rays, a yellow chimney has to be placed over the flame. Still the light is six times as strong as that of a ruby lamp and much more agreeable to the eyes. But the chemical action of the yellow lamp is much stronger than that of the red one. Professor Weber found it to be four times as strong; but that does not matter, if the tray is covered during development and the plate is examined only for a few seconds from time to time. The plate can thus be developed without any disadvantage. I have lately developed in a room into which even white day-light entered, and I succeeded, by covering the tray.

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Gädicke says: "The principal question is, Is the light of the monochromatic lamp sufficient for the wants of the practical photographer? and this question is decidedly to be answered in the affirmative.

"The proof for this I can furnish, as for the last ten months I have even manufactured dry plates in this light, which have a sensitiveness unheard of so far. They are twice as sensitive as 25 degrees Warnerke, and they gave fully exposed instantaneous pictures in one-sixtieth of a second with Steinheil group antiplanat No. 3, diaphragm 4 (12 mm. diameter)."

The enlargement of negatives is now such an important affair that the dry plate manufacturers should endeavor to produce a plate of particularly fine grain. Bromide of silver differs very much in grain; in the more sensitive plates it is coarser, in the less sensitive ones it is finer. Of particular importance is now this fineness of the grain for scientific photographic pictures; and Dr. Lohse has published for this purpose the following interesting formula:

"While making a number of photographic investigations I came to the not uninteresting result that a considerable quantity of bromide of silver can be completely dissolved in gelatine, in such a manner that no emulsion results, but only an opalescent liquid, which has a reddish appearance in transmitted light, and in which, even with the microscope, no particles of bromide of silver can be detected. If gelatine plates are flowed with such a solution of bromide of silver, they appear transparent like glass, and it is not possible to develop upon the same a picture of any kind of density.

"If ammonia is present when mixing the three substances, gelatine, silver and bromine salts, the mass will form at once an emulsion, in which a grain can be recognized under the microscope. The separation of the bromide of silver also takes place if the plates, prepared with transparent bromide of silver gelatine, are exposed in a moist condition to the fumes of ammonia. In the latter case the formation of the grain is a very even one, and it is at one's pleasure to produce plates with a finer or coarser grain, according to the shorter or longer duration of the ammonia fuming. With consideration of the foregoing facts, I have employed the following process for the production of fine grained bromide of silver gelatine plates:

"Two solutions, A and B, are made:

A.

Gelatine	2 grms.
Nitrate of silver	1 "
Water	50 c.c.

B.

Gelatine	2 grms.
Bromide of ammonia	0.6 "
Water	50 c.c.

"In A the gelatine is completely mixed with the water by application of a moderate heat, and the silver salts, dissolved in a minimum of water, is only added after the gelatine has cooled off as much as possible, as otherwise the properties of the glue will be changed."

"A and B are mixed when still warm, and after a thorough good shaking they are poured into 200 c.c. of alcohol, to remove the nitrate of ammonia and the surplus of bromide of ammonia. This method of washing, of course, which I like to apply for small quantities on account of its simplicity, can be replaced by

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any other in use. In the alcohol the gelatine will agglomerate together to a light spongy mass, which is soaked in water for some time, and finally is liquefied by heat. The volume is now filled up to the original one—in the foregoing case to 100 c.c.—and the flowing of the plates can proceed. As soon as the gelatine film has coagulated upon a plate, it can be exposed to the ammonia fumes in a suitable box or under a glass globe, but the bromide of silver will separate in not sufficiently fine grains. I let the plates, therefore, become thoroughly dry, bathe them for a short time in aqueous alcohol (equal parts of water and alcohol), and bring them in contact with the fumes of ammonia while moist, whereby the milky coloration of the film takes place very soon. It is not advisable to let the ammonia act for a very long time; a minute is almost sufficient, after which time the plates are arranged to dry. A longer action increases the grain.

"The sensitiveness of the plates is very insignificant, but they find application in all cases where there is no want of light, but where a very fine grain is required—as, for instance, in the production of microscopically small pictures, and in the reproduction of negatives, etc. It does also not exclude, that an increase of the sensitiveness of the plates may be successful. In the transparent state the emulsion is undoubtedly very insensitive, so that the preparation of the plates can take place by lighting the dark room pretty well, which is a great facility. The development of the plates I have effected with oxalate of potassium, but any other developer can undoubtedly be used also.

"The plates, although they have a prominent yellow sensitiveness and were exposed during their manufacture from two to two and one-half hours at 4 meters distance from the light of the monochromatic lamp, are perfectly clear. I have to remark, that the light, which falls directly upon the plates, passes through a yellow glass.

"If the monochromatic lamp is proof against this pretty severe test, it is so much more suitable for developing, where a much shorter time is generally required.

"Yes, it can even be applied for the development of color sensitive plates if a second glass is placed in front of the first one, remaining at a distance of 70 c.m. from the light. Impossibilities of course must not be demanded, and the generally necessary care must not be neglected; for it must be considered, that every light, even the red light, is actinic, and that in every case the plates should be left near the light for only a very short time, while examining them during development."

All the leading circles are at present occupied with the preparations for the semi-centennial photographic jubilee exhibition. From all parts of Europe we have already assurances and promises of participation; and we calculate also upon the excellent productions of the United States, particularly if the house of E. & H. T. Anthony & Co. declare their willingness to collect all the exhibition goods and ship them together. They should arrive here by the 11th of August, as the exhibition commences in the beginning of September and lasts until the beginning of October. We want to show the progress of photography artistically, scientifically and industrially, and the productions of professional photographers, amateurs and men of science are equally welcome. The first artists and the best scientists are at the head of the enterprise, and marks of distinction will, of course, be bestowed upon those worthy of them.

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Applications are received by me, Kurfürsten strasse, 124, Berlin, W. Prussia, Germany.

The new developers do not let us rest yet. The hydroquinone developer has hardly come into favor, and there is already another body announced, pyrocatechine, but which so far has not been approved.

Quite lately I received from the "Actien-Gesellschaft für Anilinfabrication" a new body, yet without name, which possesses surprising properties. It develops with a greater rapidity than hardly any other developer, and furnishes with half the time of exposure just as many details as hydroquinone will at ordinary exposure, so that we even succeeded in making an instantaneous picture at 4.30 P.M. with a Steinheil applanat. About further tests of this remarkable developer in my next.

BERLIN, April, 1889.

PRECISE PHOTOGRAPHY.

BY LIEUT. C. L. BRUNS, U. S. NAVY.

[Read before the New York Camera Club at a Meeting, April 5, 1889.]

PHOTOGRAPHY seems to be gradually passing from the tentative methods so as to include more scientific applications. The amateur of to-day is willing to endure a few formulas when he knows that they relieve him from heretofore variable conditions. Formulas based on differentials or integrals are out of place, but when simplified so as to come within mental application they are then most available. It does seem that many writers do not desire to give the simplest forms of mathematical photography, presuming, I suppose, that being so simple to themselves it is equally simple to others, and further simplification unnecessary.

There are certain conditions occurring in the practice of photography that do not vary, while others varying, the amount of variation is regular and known. If we could tabulate these constants and accept them as facts, better work would follow, as more attention could be given to the conditions which constantly vary.

We have, perhaps, no guide of more importance, both in a scientific sense and in its practical application, than the mathematical relation between the equivalent focus and the diaphragm. The equivalent focus of a compound lens of symmetrical combinations is the distance midway between the lenses and the front side of the ground glass, when a distant object is focused thereon, and the diaphragm used being a mean between the largest and smallest stop. While this method is approximately correct, and all that is necessary in ordinary practice, yet methods are given in almost all works on photography, by which it may be determined with accuracy.

Having obtained the equivalent focus, mark it on the lens mount. Measure carefully the diameter of each stop. Suppose the equivalent focus is found to be 6 inches, and stops $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{8}$ of an inch in diameter, respectively, divide the equivalent focus by the diameter of each stop, thus: $6 \div \frac{1}{2}$ or 12 or *f.* 12, $6 \div \frac{1}{4}$ or *f.* 24, and $6 \div \frac{1}{8}$ or *f.* 48. Mark these numbers, 12, 24 and 48, on their respective stops, and they indicate the number of times the equivalent focus is greater than the diameter of the stop, lineally. Again, since these numbers *f.* 12, etc., have no expressed term by which they may be called, and as they refer to

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rapidity of exposure, the writer designates such expressions by the term focal rapidity, or F. R.

We have the following optical principle or theorem: The squares of the focal rapidities, $\frac{(\text{equivalent focus})^2}{(\text{diameter of stop})^2}$ are directly proportional to their times of exposure, which for practical purposes is sufficiently correct. Applying this theorem :

Suppose we have a lens of 6 inches equivalent focus stop $\frac{1}{2}$ of an inch in diameter, or F. R. 12, and requires one second for proper exposure; suppose the stop be changed to $\frac{1}{4}$ of an inch in diameter, or F. R. 24, what would the relative or corresponding exposure be? From the theorum we have thus:

F. R. $(12)^2$ :: F. R. $(24)^2$ :: 1 sec. : x or, (b) = F. R. 144 : F. R. 576 :: 1 sec. : x or 4 seconds; or, $\frac{1(f.r.)}{576} \therefore \frac{1(f.r.)}{144}$ :: 1 sec. : x or, $(c) = \frac{f.r.}{576} : \frac{f.r.}{144}$ :: 1 sec. : 4 seconds.

Equation (c) is the form in common use, but as the form (b) is simpler the writer prefers it. Proceed similarly with all the stops, and determine the relative times of exposure, as compared with the largest stop, when its time is unity or one second. Mark these times on their respective stops, thus: For F. R. 12 mark one second; for F. R. 24, four seconds; for F. R. 48, sixteen seconds; and so on.

Again, if for a lens of 10 inches equivalent focus and stop $\frac{1}{4}$ of an inch in diameter, suppose for a given subject, plate, etc., it required four seconds to properly expose, how much exposure, subject, etc., being the same, must be given with a lens of 5 inches equivalent focus and stop $\frac{1}{4}$ of an inch in diameter?

F. R. $(40)^2$: F. R. $(20)^2$ :: 4 sec. : x or, F. R. 1600 : F. R. 400 :: 4 sec. : x or 1 second. That is, F. R. 20 or $\frac{f.r.}{20}$ is four times faster than F. R. 40 or $\frac{f.r.}{40}$

I desire at this point to introduce an application of this optical principle which I think is new. It is a simple photographic method by which you may determine the time of a shutter or momentary exposure. It is more fully and clearly explained by an example. Let us suppose you are working with a lens of 5 inches equivalent focus and stop 1 inch in diameter, or F. R. 5, having the shutter set to some unknown but fixed speed, a momentary or so-called instantaneous exposure is made, which upon development is found to have been rightly timed or actinized. Required, the time of that momentary exposure.

Follow the above experiment with another exposure, using same lens and some small stop, by which the shutter may be dispensed with. Suppose the usual working stop for time work being $\frac{1}{8}$ of an inch in diameter or F. R. 40. The subject, plate, etc., being the same. It was found after exposure under these parallel conditions, and in all respects similarly developed, that two (2) seconds gave a properly timed negative or of equal actinization to the above shutter exposure. Hence from the optical principle we have F. R. $(40)^2$: F. R. $(5)^2$ :: 2 seconds : x or $\frac{1}{32}$ of a second. Thus the time of the momentary exposure is $\frac{1}{32}$ of a second. This experiment can be perfectly well determined by exposure from your window.

This time $\frac{1}{32}$ of a second, with equivalent focus 5 inches, and this fixed shutter movement, is equal in actinization and relative in time of exposure to the two

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(2) seconds exposure above cited, and the ratio of two seconds to $\frac{1}{32}$ of a second or as 1 : $\frac{1}{64}$, will be invariable, provided equal actinizations be secured on any one particular subject, whether that subject be any marine view or landscape. Therefore being invariable, thus a constant, mark it on the camera for future record. It is evident, that if the shutter speed is changed a new constant must be obtained for that speed, likewise, if the opening or aperture of shutter is in any manner changed. The conditions of this constant being $\frac{\text{equivalent focus, 5 inches}}{\text{diameter of stop, 1 inch}}$ and $\frac{1}{32}$ of a second, for the purpose of distinguishing let this equation be called the Equivalent Shutter Exposure. It is readily seen from this equation that if it is desired to increase the time of exposure it may be done in two ways—by relaxing the tension of the spring and cause the shutter to move slower, or to reduce the diameter of the diaphragm. In the latter case it may be changed to a known degree, and in this experiment will make differences in periods of exposure by changes in diaphragms. Thus the equivalent shutter exposure becomes $\frac{\text{equivalent focus, 5 inches}}{\text{diameter of stop, } x}$ and $\frac{1}{32}$ of a second. This equation as changed is called for convenience The Undetermined Equivalent Shutter Exposure, in which x, the diameter of the stop, is to be determined.

Let us suppose the society has determined a number of equivalent shutter exposures for a series of defined views, among which we find that the equivalent shutter exposure for a particular marine view is F. R. 20, $\frac{1}{32}$ of a second. What must be the diameter of the stop x in the undetermined equivalent shutter exposure $\frac{\text{equivalent focus, 5 inches}}{\text{diameter of stop, } x}$ and $\frac{1}{32}$ of a second, in order that if exposed under parallel conditions an equally actinized plate or a properly exposed negative will result.

We have from the theorem before annunciated that F. R. $(20)^2$: F. R. $\left(\frac{\text{equivalent focus, 5 inches}}{\text{diameter of stop, } x}\right)^2$ :: $\frac{1}{32}$ second : $\frac{1}{32}$ second. We have here all parts known in the proportion except x, the diameter of stop in the undetermined equivalent shutter exposure. Solving we find x equal to $\frac{1}{4}$ of an inch stop. The undetermined equivalent shutter exposure becomes $\frac{\text{equivalent focus, 5 inches}}{\text{diameter of stop, } \frac{1}{4} \text{ of an inch}}$ and $\frac{1}{32}$ of a second, and the equation is now the equivalent shutter exposure for that marine view. That is, exposing with a stop $\frac{1}{4}$ of an inch in diameter will give an equally actinized plate with the societies' standard, F. R. (20) and $\frac{1}{32}$ of a second, if taken under parallel conditions.

Regarding this optical principle of so much importance, and capable of so many useful applications, the writer has for the benefit of co-workers computed a table of Focal Rapidities from F. R. 2 to F. R. 64. Therefore having the time of exposure for any included F. R., the corresponding time for any other included F. R. can be taken from this table by simple inspection. An explanation and examples are appended to the table, also a method of determining the times of instantaneous exposures.

The relations between the equivalent foci and stops, now, is embodied in a table, and computations thereby dispensed with. In view of the facility by which comparisons between different lenses and stops are now rendered, it is

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suggested that certain typical views, representing clouds, sea views, distant landscapes, near landscapes, without and with foliage, etc., having appended the date, hour, character of day, locality and its latitude, Focal Rapidity, principal focus of lens, duration of exposure, name of plate and sensitometer, character of developer, if moderately, slowly or quickly developed, with such remarks as suggest themselves, these being regarded as standards.

The amateur has immediately an approximate time of exposure for a similar subject, particularly if the known monthly variation is applied. He may trace his previous errors and narrow the limits between under-exposure and harmful solarization; while for those seeking technical knowledge they may determine the relations between near and distant landscapes, relative actinic intensities of light in different parts of the globe, and in similar latitudes in different parts of the year, for celestial photography, and other numerous applications.

Having carefully made some investigations, of which the following may be of service in connection with the table of Focal Rapidities. If on the 21st of June in latitude 0 degree or on the equator, the time of exposure required be one, or one second, then on the 21st of December (subject, plate, etc., being the same), the time of exposure would be the same, or one second; while in latitude 41 degrees north, which is about the latitude of New York City, on June 21st, for a given subject, plate, etc., it required one, or one second, on the 21st of December, subject, etc., being the same, it would require two and one-half times that time, or two and one-half seconds; while on the North Pole if it required one second on June 21st, it would require an infinite exposure to properly expose on December 21st. From these relations we may conclude, leaving out atmospheric conditions or local irregularities, that the difference between the times of proper exposure on June 21st and on December 21st becomes greater as the latitude increases. These differences should be tabulated by each photographic society for its home latitude, and for each month of the year. There are many tables published, but they are of little use if the locality and latitude are not given.

In reference to the minimum and maximum range of exposure on a particular subject, the writer has found it to be three and one-half times the minimum time; that is, if at noon and under most favorable photographic conditions, a particular subject required one second for proper exposure, then on some proximate date, during a northeast storm, sky overcast and raining, the time of exposure, subject, plate, etc., being same, would be three and one-half times (or three and one-half seconds) the time required when the conditions were most favorable. There are two conditions fairly established: 1st. That under parallel conditions, in this latitude, it requires at noon two and one-half times longer exposure on December 21st than on June 21st, to equally actinize a plate. 2d. The plate, subject, etc., being the same, it requires three and one-half times more exposure under most unfavorable photographic conditions than is required under most favorable conditions.

In conclusion, the writer desires to say a few words on the intensity of the sun's light and the power of illumination—not, however, in a scientific sense, but rather photographically. It is a well known fact that the atmosphere, under certain conditions, has a selective, absorbing power on rays of light, producing from yellow light that appearance that the source is red, and of white light that the source is yellow. This condition is in its maximum when the source of light is

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near the horizon, and on which rests a belt of thick, heavy and highly refractive media. This condition may exist even while the sky overhead is free and clear. These conditions are particularly applicable to the sun and doubtless its luminosity and intensity are much affected thereby. With the sky clear the before mentioned ill conditions practically cease at sea when the sun reaches an altitude of about (10°) ten degrees, while on land the ill conditions manifest themselves for a longer period, depending on locality.

The writer has observed that when the sun is not less than two and a half hours high, these ill conditions practically disappear, and the time of exposure, to properly expose for a distant landscape, is the same, sky remaining same, during the entire day, until the sun reaches an altitude two and one-half hours from setting. Therefore conclude that the intensity of the sun's light is the same between those intervals. For near views, however, the times of exposure become less as the sun approaches the meridian. In the near views the shadows become shorter as the sun increases in altitude, and as shadows become less, illumination increases. Thus at noon the sun's intensity as well as its power of illumination reaches a maximum, and the interval of exposure is shortest for near views. Therefore conclude that after the sun passes the refractive belt near the horizon the intensity remains the same until it reaches a similar point from setting, while illumination is dependent on the altitude of the sun and is greatest when on the meridian.

THE DETECTIVE CAMERA; A SUMMARY OF EXPERIENCES AND OPINIONS.

BY HARRY T. DUFFIELD.

(*Continued.*)

Please state your manner of using it (weak, normal or strong) in summer and in winter? The general custom is to begin with weak, and as soon as details begin to appear flow the plate with normal solution, and add, if necessary, either or both of the solutions as may be required. A. A. Adee: "The temperature of the solution is one of the most important factors. In summer it should be as cold as possible at starting, as it gets warm enough as the development continues. In winter it should be about 65 degrees, and stay so. I generally begin with a well diluted solution, and build up as required." Archibald I. Carson: "In summer I generally succeed in bringing the picture out with a weak developer; in winter, normal, warmed." A. C. Abbot: "Either method, with the above formulæ, will give good results. I prefer to start development with normal developer, and as soon as density is obtained get detail by treatment with dilute alkali. Potash or ammonia give equally good results."

Have you ever used, in detective camera work, ferrous-oxalate, hydroquinone or hydroxylamine developer? What has been your experience? The majority answer they have not used either of these developers. Richard H. Lawrence: "Have used all of them with perfectly satisfactory results." Albert H. Pitkin: "Prefer ferrous-oxalate for all work to anything else; have used many formulæ and always returned to my favorite, contented with it." Edward Leaming: "Yes; all kinds of experiences." Rev. Dr. Bolles: "Ferrous-oxalate gives me weak negatives; hydroquinone fogs." William E. Bond: "Unsuccessful with ferrous-oxalate; successful with hydroquinone." F. C. Beach: "Used ferrous-oxalate in 1884 with good results, but it was too slow and was difficult to get detail out in the shadows. Have used hydroquinone to a limited extent, but have found it much slower than pyro." William J. Hickmott: "Never used ferrous-oxalate after trying pyro and potash. I believe in using one developer—first, last, and always. Get a good one and stick to it until you can get your negative every time or most every time."

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What improvements in the construction of the detective camera can you suggest?
A. C. Abbot, Boston (Mass.) Camera Club: "A method of construction so that operator could observe the whole field of the plate and focus at the same time that the exposure is made."

Hon. A. A. Adee, Assistant Secretary of State, Washington (D. C.) Camera Club: "The ideal camera would be one carrying two lenses, of 7 and 4½ or 5 inches focus respectively, with an automatic arrangement to bring the plate to a fixed focus at the same time that the lens is changed. An automatic arrangement to bring a fresh plate or breadth of film into place after making the exposure, the shutter at the same time setting itself for a second exposure, would be a god-send. In other words, twelve pressures on the exposing trigger or bulb should expose twelve negatives, without the necessity of manipulating the internal arrangements, either by the clumsy process of opening the box or by working slides, buttons or levers on the outside. A strong spring, wound up at starting, could do this. A figure, seen through a slot, could visibly register the number of exposures made. A thoroughly self-contained, automatic camera could be disguised in an endless variety of portable cases, and used without attracting attention, and so justify the name of a 'Detective camera,' now so grossly misapplied in nearly all instances."

George Marshall Allen, Society of Amateur Photographers of New York: "A swingback that would work automatically when camera is tilted."

Robert Baker, Society of Amateur Photographers of New York: "A very difficult question to answer. A detective camera, to be useful, should not have any plate holders, but should be so constructed that it carry within itself at least two dozen plates, and so arranged that these plates could be easily transferred from one part to another of the camera, with a slight movement of the box. Provisions for focusing lenses from 4 inches to 8 inches. A great luxury would be a movable or sliding focusing screen that could be brought into use in a moment."

Miss Catharine Weed Barnes, Society of Amateur Photographers of New York: "My objection to the detective camera is not being able to focus as sharply as with my regular view camera."

F. C. Beach, Society of Amateur Photographers of New York: "A detective camera should have a shutter of positive movement, balanced to prevent excessive shock, yet capable of moving fast enough to take a trotting horse passing the camera at right angle to the axis of the lens, without blurr of image. Plate holders and slides should be dispensed with and means provided for bringing the sensitive surfaces into position rapidly. There should be provided temporary means for preventing the light striking the plate when the shutter is set or a self-shutting shutter arranged. Special devices are needed for easily releasing the shutter without jarring the camera at the instant of exposure."

Sydney Bishop, Society of Amateur Photographers of New York: "1. That they be so arranged that at least six plates can be exposed without opening the box. 2. That the shutter can be timed accurately. 3. That it can have a practical double swing. 4. That the finder is actually in proportion to the size of the plate and absolutely correct in position. 5. That the bellows have freedom enough in movement to take a wide angle or rectilinear lens."

The Rev. E. C. Bolles, D. D., Society of Amateur Photographers of New York, "What I want for my own work: 1. A camera to carry fifty films (the new celluloid), with certain and rapid means of exposing them in succession. I prefer these films to roll holder paper or films, and find that they work as well in the detective as glass plates. 2. Some easy and satisfactory way of focusing the image up to the very instant of releasing the shutter. The arrangement for focusing by estimating distance has been very unsatisfactory in my hands, and I invariably lose the view that I want the most and 'estimate' for most carefully. A camera thus fitted up needs no 'finder,' of course. 3. A shutter-release at once firm and delicate, not to be set off by a jar, and yet working so easily that you do not move the camera in operating it."

Wm. E. Bond, Society of Amateur Photographers of New York: "Any-

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thing that will contain a satisfactory substitute for glass plates, in a roll or otherwise, in quantity sufficient to make twenty-five or fifty exposures without opening camera to change holder, and consequently will be more light-tight than present cameras and holders. Also a focusing finder which will change as the camera bellows change, so as to enable one to focus on an object instantly by looking in the finder."

Frederick Bruce, Society of Amateur Photographers of New York: "The shutter should work in the center of the lens or back of it; a more noiseless shutter would be advisable."

William A. Bullock, Photographic Society of Philadelphia: "Slide to close the two finder eyes of camera when not in use. Shadowing hoods to the finders to keep the sunshine off the ground glass of same when sun is shining over your back or overhead. To have the top of the lid divided and hinged, so that you can introduce a holder quickly at any focus, without opening entire camera box, and a means of withdrawing quickly the holder other than by your finger nails. Also an indicator to show whether or not the shutter is set without having to try the same. To have drawn on top of camera lines showing the angle of view included by lens, so that without use of finders you can be sure to have an object on the plate—a very necessary thing in quick snap work on the streets. Also a small roll holder to slide in place of plate holders. The present roll holders make the camera too bulky."

E. J. Carpenter, Cincinnati (O.) Camera Club: "Too many to write down this evening. I don't think the perfect detective camera can ever exist, except in the imagination; it requires 'too many more improvements,' many of which conflict with one another. My 'detective' and other camera experience has been quite varied, and has taken all my leisure time since 1881; but it appears to me that I have mainly learned how much there is to be done in this direction. There is a wonderful fascination about the work, however."

H. M. Grisdale, Society of Amateur Photographers of New York: "One that will take lens from 5 to 8 inches; carry at least two dozen glass plates; set shutter and release from outside of box; expose plates without opening box or drawing slides; no external brasswork; and lock so that it will be impossible to meddle with it without key; color, dead black."

W. J. Hickmott, Camera Club of Hartford, Conn.: "Make it less complicated, and so that it can be used instantly. When I need my detective most my experience has been that there is not time to work a complicated camera. It usually happens that by the time I am ready to shoot, the effect I particularly wanted cannot be obtained, the game has got out of range. One cannot usually sit around all day waiting for good things. They come suddenly and unexpectedly, and must be caught on the fly to be worth getting. This cannot be done if the camera will not admit of being worked quickly and easily. By the time a lens was changed, a swingback adjusted, the shutter regulated to a minute fraction of a twentieth part of a second, the slide drawn, etc., even a rheumatic mud-turtle would have crawled out of sight and been lost forever. My experience points only in one direction, viz., to the need of extreme simplicity in construction of the camera; a fixed focus; a good shutter that will let in lots of light when open and none at all when closed; some means of pulling the slide without having to open the box, if possible; a flexible film that does not need stripping; and when these are provided it will be easy and pleasant work to get good pictures with a detective camera."

John Leshure, Springfield (Mass.) Camera Club: "I would suggest that the bellows of the camera should be made of longer draw, so that objects less than 8 feet could be photographed readily, and perhaps some copying done. The shutters on most detective cameras do not have the proper shaped opening, and I think that a shutter which works between the lenses is preferable to most of the shutters now used. I would also suggest that the lenses should be of longer focus than are generally used, say 7½-inch equivalent focus for a 4 x 5 plate. The ways on which my camera slides are made of soft wood, which in summer swell and make focusing almost impossible. If these were made of brass, the camera would work easier."

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William H. Murray, Society of Amateur Photographers of New York: "Some invention to enable one to take many pictures without having to change plates or films, to avoid the weight of glass and yet not have the complication and expense of the roll holder. I think the celluloid film, and the promised contrivance for carrying the same in one holder to the extent of about four dozen films, will solve the problem."

Isaac T. Norris, President of the Amateur Photographic Society of Baltimore (Md.): "If the future of plates is to be the ivory film, we want a case holding, say, twelve films, separated by, say, ferrotype sheets, so that a spring may push one at a time up into focus and make a dozen exposures at once. With all my admiration for the detective and after three years' use of the same camera, I am the more convinced that instantaneous work is only an episode in the work of the amateur photographer. Time pictures are the cream of the camera, and however careful to focus with the detective there is that difference between the two kinds of work which adds to the richness and depth of the time picture."

Albert H. Pitkin, Camera Club of Hartford (Conn.): "Dispensing with all clap-trap attachments. Less bulk and weight."

Charles Quartley, Baltimore (Md.) Camera Club: "A camera in which can be carried films or other flexible plates without the necessity of independent plate holders, where no stripping would be necessary, would be the most desirable feature of any improvement that I could suggest."

A lady amateur, Worcester (Mass.) Camera Club: "A lens which would remove any necessity of taking any focus. Guessing at your focus is very unsatisfactory in my experience, and it is very inconvenient to have to go through the operations necessary to look through your ground glass and take an accurate focus. The plate on which handle of my focus works is marked 6 to 10, 60 feet, and experience enables me to be pretty accurate; but I have found several pictures ruined by being out of focus when I guessed at the distance being about 25 or 30 feet. I saw an English (?) lens this summer that entirely obviated this difficulty. Any object at a distance of 10 feet was in perfect focus, likewise any object at a distance of 100 feet or more. This seems to me to be the chief fault and annoyance of a detective camera. I think also an arrangement by which you could carry more than three plate holders in your box would be a great improvement. I can carry but six plates in my box, and any carried in any other way run the risk of being injured unless one gives one's undivided attention to them. I ruined many such this summer in going off for the day, when I wanted to take many pictures and carried ten or twelve plate holders in a bag. Of course it would add somewhat to weight of camera box, but I should think six plate holders might be carried without inconvenience."

Edgar Richards, President of the Washington (D. C.) Camera Club: "Not having any experience with the commercial varieties, I can only state what I find desirable and have adopted in my own models. The box should be light, rigid and strong. All parts to be easily accessible with a key. At least one dozen plates in six holders, plates to be carried in the box. The front of the box to have a hard rubber shutter, or cap, properly speaking, which covers both lens and finder, and by one movement uncaps both, so that whenever you see an image on the ground glass of finder you may be sure the large lens is exposed. For the vertical finder I have a separate cap, but as this is seldom used the habit of moving the large rubber cap is not forgotten. Front of box to hinge and lock, allowing tension of shutter to be adjusted, if necessary, for slow work. Top of box provided with handle, leather. In front to have a piece of plate glass, hinged, and closing level over pointer attached to lens shutter. Glass to be marked off with a diamond scratch into distances for 10, 15, 20, 30, 40 feet focus. Ground glass of horizontal finder to be at side, and protected from direct light by hood, right-hand side. The thumb screw for moving by rack and pinion. The shutter and lens to be beveled. Door running the length of bottom of box, provided with lock, as compartment for storing extra holders. Small door, with lock, for the introduction and withdrawal of holder at back of camera.

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Vertical finder. Back, locked door, width of box, for focusing when required. Left-hand side perfectly plain. Bottom string release to shutter. The shutter can be set, and the diaphragms rotated, through plate glass opening on top of box. A vertical pointer is screwed into center of shutter, and work smoothly beneath the glass. The exact distance for which the lens is in focus is thus always indicated, and permits of the focus being rapidly changed without disturbing the position of the box while viewing the object in the finder. The center part of each plate is marked on the finder, which is a great convenience. The rack and pinion have a movement of 1¼ inch, so that a great range of focus is provided for."

Major George Shorkley, U. S. A., the Society of Amateur Photographers of New York: "That the focus be so arranged as to permit the use of the longest and shortest lenses, adaptable to the size of the plate, and to be quickly adjusted from the outside. A lens mount adjustable for moderately narrow and for wide angle lens. Some manner of hood or cover over the aperture in front of the camera, to be arranged to work automatically with the shutter as well as independently of it. It is presumable that all that one can suggest as real improvements have already been achieved by some one, and were all the best in one and the same camera, it would leave little to be desired; but unfortunately cameras, like other appliances, have patents upon them, and different stock houses have control of the excellencies."

Charles Simpson, Society of Amateur Photographers of New York: "1st. Better mode of concealment than anything now in the market. In fact, I know of no detective camera that cannot be detected on sight—would recommend a satchel as mode of concealment, but not cumbersome. 2d. Means of removing the camera proper from the box or place of concealment without loss of time, for the purpose of mounting it on a tripod for landscape work. 3d. Arrangement for changing lenses without loss of time and attracting attention. 4th. Rotary stops for the lenses and for instantaneous exposures. 5th. Larger finders, with lenses to correspond with the increased size of the finders. 6th. Swing back so adjusted as to swing from the center of the vertical side of the ground glass frame."

A. L. Simpson, Society of Amateur Photographers of New York: "The general fault that I have found in detective cameras is the fact that the lenses do not cover with large opening the plate called for, and in consequence it is difficult to obtain a fully exposed plate of any subject except in very bright light. If, however, a much larger lens than was necessary was used, you could open it fully and have a finely cut and fully exposed plate, and be able to take an object much further off in consequence of the focal length of the lens being longer. Of course this would necessitate the box being made a little longer; but what I think desirable is, that the result would be much better. The most interesting objects for the detective box are studies of every-day life, and as in many cases they keep pretty well in the shade, etc., the foregoing remarks are made applicable."

James H. Stebbins, Jr., Society of Amateur Photographers of New York: "I would suggest some simple means of carrying quite a number of plates, and some device for changing them conveniently in the open air. In this way a large number of plates could be carried, with but few plate holders."

E. Terry, Society of Amateur Photographers of New York: "The different parts requiring attention—focus, time, etc.—are too scattered; they should, if possible, be so placed that they can all be seen at a glance."

W. T. Wintringham, Brooklyn Academy of Photography: "Should I ever build another for my own use, I would put in two shutters; one, having a range from $\frac{1}{100}$ second upward would be placed between the lenses; the other, with, if possible, a range from $\frac{1}{100}$ downward to, say, $\frac{1}{10}$, would be placed in front of the lens, and act also as a hood. What is wanted more than anything else is a plate holder for the new films capable of carrying a quantity—two or three dozen—in small space, and some arrangement whereby they can be quickly changed."

Ellerslie Wallace, of the Photographic Society of Philadelphia, answered the

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questions, but unfortunately they were received too late to be used in the foregoing part of this paper. In answer to the last question, says: "None. But I can and do urge a rational and careful selection of subject; not the haphazard exposing on anything and everything, irrespective of good or bad light, and suitableness or unsuitableness of the thing photographed. I urge that the operator 1st should know what he has to do, and 2d, should be provided with the means of doing it. By this I mean a fair-sized plate, not too rapid; a shutter, not too rapid; a good finder on the box, and pluck enough on the operator's part not to attempt doubtful or poor subjects, unless, indeed, he is working for amusement only."

TWO OPEN LETTERS ABOUT PHOTOGRAPHY.

BY MISS ADELAIDE SKEEL.

DEAR ?—I want to ask your advice about buying a camera. Do they cost much? Does photography take much time? Is it hard to learn? I don't know a thing about anything, but am ambitious to do it all myself because people say that's the fun of it, and besides professionals are so dreadfully jealous that they always spoil amateur work in the finish. Haven't you noticed how much nicer they make their own look? I don't expect to go extensively into the business, only just family portraits, and views when we are off for the summer, and interiors, and maybe flash-light pictures in dull winter evenings. Finally, is it really nice to do it? Will I enjoy it at all, do you think? R.S.V.P. soon, and believe me Always yours, ———.

DEAR ———.—How much does a gown cost? Does it take much time to make one? Is it hard to learn how? And finally, is it nice to make them? Your questions are about as comprehensive as mine, but to be serious I will answer as well as I am able:

First.—A camera costs from twenty-five cents to a thousand dollars, and while you can sometimes get a tolerably clear, sharp picture from a ten-dollar outfit, I should not advise you to use poor tools permanently. Bargain hunters in photography usually buy dear, so I beg you to visit or send for the catalogue of some reliable stock house before you waste money in toys. If you do not know the difference between a stop and a lens, or between a tripod and a focusing cloth, not to mention the intricacies of rigid beds, adjustable fronts, patent swing-backs and iris diaphragms, it would be wise to borrow a camera of a friend and take an object lesson. Here I venture to say that, in my humble opinion, borrowing does not dull the edge of photography, nor lending either. Be both borrower and lender; for such is the Free Masonry of the art, that every one is willing to help another along this sunny road. If you cannot borrow a ten-dollar outfit buy one, and when you have passed the experimental stage, sell it at half price or give it to some other beginner. We are all poor relations in photography till we have blundered for a while. It is best to begin with small plates; but when you come out of your chrysalis state, should your enthusiasm last, open your purse wide and spend at least twenty-five dollars on your lens and what you choose for the rest of your apparatus. With the present facilities of enlarging on bromide paper, it does not seem necessary to have a particularly big plate—5 x 8 is an awkward size, and 8 x 10 rather cumbersome. I use 4¼ x 6½, and like it; but more of this later. Get the best you can afford in lens and camera, then learn to use both to their best advantage.

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And, is it hard to learn—does it take much time? You tell me that you only wish to attempt a little, and then define that little so that it covers the whole field of the art. Forgive the copy-book aphorism, if I remind you that to do a little well in any art implies a large reserve force of knowledge, and to gain that knowledge one must work hard and long. To be sure, a success at the outset seems to contradict this theory; but how rarely one's second or third attempt proves equally happy? It seems to me that this fatal facility of beginners is a bane to progress, unless one is uncommonly astute. It looks as if we knew it all, when by chance we make a hit; but, alas! we are only blunderers till we study the reasons of our prize pictures and our failures, and often remain blunderers after most exhaustive research. Yes, it takes time, a life-time, to learn how.

Finally, Is it really nice to do it, and will you enjoy it? Do you think the gift of the fairy-eye enjoyable? This is what photography is to the dullest of us, and to the artistic doubtless much more. It makes dusty wall-sides interesting; it calls us to look at that bunch of burdock bordering the familiar path; it stops us in a crowded street to note a takeable group of ragged children; it teaches us to study every face from the best point of view; it leads us hither and thither to see this and to see that—it is the unseen playmate that is sure to be present at home and abroad. Do you like such a companion? It seems nice to me—and so I end my letter. Yours sincerely, ?

[*From Photographische Correspondenz.*]

THE ANILINE PROCESS.

BY WILHELM WEISSENBERGER.

THE purpose of my present explanations is to give a clear picture of the Lichtpaus process known under the name of "Aniline Process," and to make you acquainted for the first time with the methods invented by me with acid sulphates and bi-acid phosphates of alkaline salts, besides the new carriers of oxygen here applied, manganous sulphate and chloride of magnesium.

The cheapness, durability and the absolute exactness shown by unwashed copies after development were, besides the high chemical interest possessed by the process, the reasons which prompted me to a close study of the process.

Aside from this we possess at present no Lichtpaus process which with equal quality of production is as simple as the aniline process and furnishes dark lines upon light ground.

The aniline process has been worked repeatedly, as described in Dr. Eder's Handbook of Photography, page 248.

My problem was to explain the chemical process so as to determine the most favorable proportions of mixture for the chemicals applied.

If paper is spread with a solution of bichromate of potassium in diluted sulphuric acid or phosphoric acid and exposed after drying under a diapositive, the bichromate of potassium will quickly decompose at the lighted parts into the normal potassium salt, and the chromium salt of the acid employed, with loss of oxygen. At the covered parts this process will proceed much slower, but sufficiently quick to oxidize in the fuming box the aniline vapors to aniline black after completed exposure.

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According to my observations the highest sensitiveness of light as well as the quickest oxidation in the fuming box by application of sulphuric acid is therefore obtained, if so much sulphuric acid is taken that normal sulphate of potassium and sulphate of chromium can form, according to the formula :

$$K_2 Cr_2 O_7 + 4H_2 SO_4 = Cr_2 (SO_4)_3 + K_2 SO_4 + 4H_2 O + 3 O.$$

A formula corresponding with these proportions is:

Bichromate of potassium	10 grams.
Concentrated sulphuric acid, density 66° B	13.3 "
Water	100 c.c.

For the application of phosphoric acid there exists the formula :

$$3K_2 Cr_2 O_7 + 8H_3 PO_4 = 3Cr_2 (PO_4)_2 + 2K_3 PO_4 + 12H_2 O + 9 O.$$

or

Bichromate of potassium	10 grams.
Phosphoric acid (20 per cent. density 1.117)	122 "

In general is to be remarked that a larger quantity of acid will increase the light-sensitiveness. The contrary is the case if the quantities are reduced, and the process will be slower. In this case also the pure chromium compounds cannot form, but some chromate of chromium will form alongside of them, which is easily recognizable from the yellow coloration.

It is of importance in the process with free acids, that according to my experiences, it can be executed without oxygen carrier.

The penetrating of the liquid into the paper can hardly be avoided by preliminary preparation with gum or paste, but is by stretching a piece of flannel over a squeegee, and with this arrangement distributing the liquid quickly over the surface.

This disagreeable penetration of the liquids into the paper pulp prompted me to look around if it was not possible to replace the free acids with bodies of similar proportion, not having this bad property. Sulphuric salts were the next I thought of. A test confirmed the correctness of my supposition. With application of manganous sulphate as oxygen carrier the process proceeded smoothly, but the acid sulphate of potassium showed no less disposition to penetrate deeply into the paper. With a little skill this difficulty can be easily avoided, and for this reason I give the formula again which served theoretically and as a practicable prescription :

$$3 K_2 Cr_2 O_7 + 24 K H S O_4 = 3 Cr_2 (S O_4)_3 + 15 K_2 S O_4 + 12 H_2 O + 9 O.$$

Bichromate of potassium	10 grams.
Acid sulphate of potassium	45 "
Sulphate of manganese	4 "
Water	150 c.c.

It was natural to pass from the acid sulphate to the acid phosphoric salts, and I believe I have discovered in these the most applicable substances. Double acid phosphate of soda is to be had in market, and it can also be made by saturating 980 grams phosphoric acid of 20 per cent. with 286 grams crystallized soda, and crystallization.

The aniline process, which by application of acid salts cannot be executed without oxygen carrier, offers the least difficulties with the acid phosphate of soda, the latter penetrating only very slowly into the paper. In this case the

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chloride of magnesium only can be employed as oxygen carrier, the sulphate of manganese producing a precipitate with the double phosphate of soda.

While the method with the acid sulphate of potassium furnishes the lightest ground (light blue), the papers made with the acid phosphate of soda are the most sensitive ones.

In the two last methods I have spoken of oxygen carriers. In chemistry we understand by this a number of bodies, in whose presence the oxidation of another body is considerably accelerated by a third one. It is supposed that these bodies at first absorb oxygen and then emit it again. Lothar Meyer (Humboldt, 1888: Third Number, Report of the German Chemical Society) furnishes proof of this, that metals by passing easily from one degree of oxidation into another, prove the most effective oxygen carriers. That even magnesium acts as oxygen carrier leads us to conclude that this metal has also a tendency to the formation of sub-oxides, although such salts have not been produced yet.

The above-mentioned oxygen carriers were recognized as such first by L. Meyer, and I was the first one to apply them in the aniline process.

For the employment of bi-phosphate of soda the following proportions, corresponding with the formula below, have proven to be good:

$$K_2Cr_2O_7+4\,(Na\,H_2PO_4+4\,H_2O) = Cr_2\,(PO_4)_2+2\,Na_2K\,PO_4+4\,H_2O+3\,O$$

or

Bichromate of potassium	3 grams.
Acid phosphate of soda	8 "
Chloride of magnesium	3 "
Water	40 c.c.

The paper, whether prepared after one or the other method, is exposed until the ground shows an even green color (five minutes in the sun, half an hour in the shade). After this it is placed in a box with double cover. The inner cover carries on its lower side two strips of cloth, of which the one is soaked with a few drops of aniline and the other with water. But care has to be taken that none of the liquid drops upon the prints in the case. It may also be mentioned here that the steam is absolutely necessary for the strong development of the picture. As long as the box is new it is advisable to coat the inside with aniline oil, as otherwise the wood might absorb all the aniline vapors, and the prints would blacken very slowly or not at all.

The picture appears in dark green-black lines in from five to ten minutes. After washing they will become blue-black. If indifferent about the color of the ground, the copies can be used as taken from the fuming box. Otherwise one is enabled, by washing and subsequent bathing in a five per cent. ammonia solution, to reduce the ground tone considerably. Five per cent. muriatic acid dissolves the phosphate of chromium completely, while the sulphate of chromium is insoluble in this solution.

Finally, it may be remarked that great care has to be taken in the selection of the paper to be applied. Paper containing wood fiber is decidedly to be avoided, the same coloring brown in the fuming box. The wood contained in the paper can easily be proven by a solution of phloroglucin in diluted muriatic acid. If such a paper is touched with this solution it will color light to blood red, according to the quantity of the woody matter.

A solution of sulphate of aniline in water colors all papers containing woody matter yellow.

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I have used the old chemical expressions to make it more comprehensible to all photographers who are acquainted with the old chemical school. But I could not do without the new formulas, my mind and way of thinking being too closely allied to them.

THE EFFECT OF ELECTRICITY ON DRY PLATES.

BY F. C. BEACH.

[Read before the Society of Amateur Photographers of New York, March 12, 1889.]

I WAS much interested a short time ago in an account of a demonstration given before an English society by a Mr. F. Greene, wherein he intended to prove that a fac-simile of a coin could be impressed upon the moist film of dry plate by the action of a current of electricity passing between the terminals of a battery one of which was immersed in an acid solution and the other connected with and rested upon the coin laid on the film of the plate, the latter being also immersed in the solution.

After the current passed for a short time, the coin was removed and the plate put into a developer. Soon a distinct negative image of the coin appeared. The experiment showed that by electric action and without the aid of light an impression was made.

Knowing from some experiments made by a friend of mine, Mr. John R. Paddock, of the Stevens Institute, on the electrical conductivity of the bromide film of gelatino-bromide paper, resulting in proving that it was nearly a non-conductor, I hesitated to believe that the result obtained by Mr. Greene was entirely due to direct electric action, but imagined that it might be the result of some secondary effect induced by the electric current.

With a view of investigating the subject further, I invited Mr. Paddock to carry on a series of experiments under my direction, and supplied him with a dozen 3¼ x 4¼ gelatino-bromide and also the same number of gelatino-chloride plates, the latter being of English manufacture.

He has recently handed me a report of some of his experiments which is substantially as follows :

First Set of Experiments.

A bath of muriatic acid, 2 drams; water, 10 ounces, was first made. Two gelatino-chloride plates were placed in the bath in a horizontal position, films upward, and on one rested a silver half dollar coin, and on the other a silver dime. The battery consisted of five Leclanche cells, connected in series. The electric current was then passed through the solution for thirty seconds, from the positive platinum pole in the solution to the negative platinum pole on the coin. After keeping the plates in a pyro and potash developer for from ten to twenty minutes the image of the coins was faintly discernible. Plate marked No. 1 shows the result. Merely a faint outline of the coins will be observed.

A third gelatino-chloride plate was immersed in the solution having the coins resting on the film, but no current was passed through. No impression was obtained on development.

A fourth plate of the same brand was suspended film side downwards, horizontally, in a bath of water. A rubber tube was carried under the solution until the mouth of it was one-fourth of an inch away from the center of film. Then a

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current of hydrogen gas was sent through the tube, and in emerging at the mouth gradually spread over the film.

When placed in the developer the plate turned a deep black color over the entire surface.

Second Set of Experiments with Gelatino-Bromide Plates.

The plates were all immersed in a muriatic acid bath as before, and connected in the same way. On the first plate was placed a half dollar silver coin having the edges and one face protected with wax. The unprotected face was placed in contact with the dry film, and cemented at the edges with wax, and then immersed in the acid bath, the negative pole being connected to the coin. The current could only act on the under side of the coin next to the film. The current was then passed through for two minutes.

In raising the coin from the plate a small portion of the solution worked in under the edge, which appears in the peculiar hook appearance shown in the resulting disk; but prior to immersion in the developer nothing was observed on the plate. After development, for several minutes, a dense black disk, with a faint marking of the dots on the coin, was obtained, but it was nothing like a satisfactory image or fac-simile of the coin. In plate No. 2 the peculiarity of the disk will be observed.

Other coins of copper, a German coin (alloy 25 per cent. of copper) and an engraved copper plate resting on the film, with the electric current passing as before, were tried, but on being placed in the developer no impression appeared.

A third set of experiments included the immersion of chloride plates in a chloride of ammonia bath, using the same electric current and silver coins as above, but the results were not as satisfactory, only indistinct, blackened impressions appearing during development.

A plate was moistened and coins of various kinds pressed down upon the film. On development the impressions came out as good as when no electricity was employed.

Plate No. 3 shows the effect very clearly. It should also be mentioned that if a chloride or bromide silver film be stripped from a support and be subjected to a current of electricity passing directly through a cross section, the film will blacken at the negative pole by reason of the silver salt in the film.

The opinion of Mr. Paddock and myself is that the blackening effect produced in the film is the result of the reducing action of hydrogen gas generated in its nascent state, in contact with the film by the current of electricity passing between the two poles, and not to the current alone, as stated by Mr. Greene.

This he in part proves by causing a stream of hydrogen gas to impinge against the film, immersed in water; when developed the film blackens precisely like the disk obtained with the waxed coin.

Passing next to the effect of a high tension current (such as is obtained by an induction coil) on a dry plate, I have been much interested in an article by J. Brown "On Figures Produced by Electric Action on Photographic Dry Plates," published in the *London Philosophical Magazine*, and reproduced in the January, 1889, issue of the *American Journal of Photography*. In photographing the discharge between the electrodes of an induction coil, Mr. Brown was led to further experiment on the effect of the current when applied directly to the film. He obtained some interesting results, the most important of which was the discovery

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that an induced current so slight as to be invisible to the eye produced an impression on the film of sufficient strength to be developed out.

He says: "The foregoing results would go to show that actual disruptive discharge over or in the film is not needed to produce an effect visible on development, but that the figures and markings are produced partly, at least, by direct electric action on the sensitive film, without the intervention of a visibly luminous action, or what would be usually understood as a purely photo-chemical cause. Possibly further investigation may show that we have here a new kind of experimental evidence on the relation of electricity to light."

It is presumed the experiments were carried on in absolute darkness, so that the eye might easily detect the least trace of the inductive current. Nothing in regard to this, however, is stated. If a faint red light was used, it might prevent the indistinct electric sparks from being noticed. Plates of extreme sensitiveness were employed, and it is possible they may have been impressed with the faint light not seen by the eye.

A short time ago, with the assistance of Mr. George M. Hopkins, of the *Scientific American*, I tried a few experiments, more especially with a view to determine first what the actual electrical resistance of a section of an undeveloped and developed gelatino-bromide film is; and secondly, to satisfy myself as to what effect an invisible induced electric current has on a wet and dry surface of a gelatino-bromide film.

First, then, I prepared two sections of plates of exactly the same length and width (4 inches long by 1 inch wide), wrapping tin foil around each of the ends, and marked respectively *A* and *B*. *A* is the developed and fixed section. *B* is the plain, undeveloped portion.

These in turn were laid upon a block of pure paraffine wax, and then connected with a battery of six standard gravity zinc and copper battery cells, a Bergmann Wheatstone Bridge and a Thompson Reflecting Galvanometer (the most delicate that is made), and carefully tested as to the amount of current they (the plates) would conduct. After spending nearly two hours in conducting these experiments the conclusion reached was that there is no conductivity in the gelatine film containing the salts of silver. The only measurement we did obtain amounted to over a million ohms resistance, which is equivalent to infinity. There was no difference either in a developed or plain film.

From an 8 x 10 gelatino-bromide plate of medium rapidity we cut off four strips, 1 inch wide and 8 inches long. These we respectively laid on a paraffine block and experimented with an induction coil run by five cells of a medium sized bichromate plunging battery. We wrapped the tin foil about an eighth of an inch in width around the end of each strip, and connected them with the fine wires from the secondary poles of the coil. The by-pass points of the coil were separated about 2 inches, to force the current to pass over the wires and across the section of the strip. The wires were covered with a piece of silk cloth to prevent any light that might come from them from striking the plate. A very weak induced current was generated and kept up for two minutes. The strip marked *C* was thus treated. Next a strip marked *D*, subjected to the same current for the same time, was moistened with water. In each case no current in the darkness of the room was observable to the eye, but when looking closely at the strip the nose detected the peculiar odor of ozone.

A third strip, marked *D*, was then held in the air at right angles to the

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passage of the spark passing across between the two by-pass points of the induction coil, these being about 1¼ inches apart. Numerous discharges were allowed to play against it for about a minute, and seemed enough to fog it badly.

Lastly, a fourth strip, marked *F*, was laid on the paraffined cake, the by-pass points drawn apart and the full force of the induced current put on. A bluish light glowed all around it; the current was observed to leap across in the air about half an inch above the strip, showing beyond a doubt that the film had no attraction for it.

The distance between the terminal wires connected to the strip was decreased one-half; still the current would prefer the air to the plate.

I placed all the four strips (*C*, *D*, *E*, *F*) in one tray, and poured over them a pyro and potash developer, containing 2 grains of pyro and 4 grains of carbonate of potash to the ounce. In about a minute and a half the films of all commenced to turn, and after three minutes' development they were all pretty well blackened.

C and *D* show no markings other than a general turning of the film. *E* shows the distinct tracing of the sparks as they flew over the film, the points of contact and departure being very foggy. *F* shows the effect of the light very plainly at the terminals where it was surrounded by the wires.

In the cases where there was no electric spark visible and where the plate was in total darkness I cannot account for the turning of the film in the developer unless it was caused by some subtle influence of the current not fully explainable, or to chemical fog. I at first attributed it to the atmosphere of ozone which must have been over the film, but to prove it I had Mr. Hopkins generate ozone by running a series of electric sparks between needle points inclosed in a paper cylinder. Rubber tubes passed from each end of the cylinder. At the end of one tube was placed a sensitive plate protected with a metal shield having a star cut in it. After the electric current had generated sufficient ozone in the paper tube, air was blown in one end, which forced the ozone out against the sensitive plate marked *G* at the end of the other tube. This was kept up for one minute, during which time the ozone was continuously generated. The experiment was carried on in total darkness. After immersion in a pyro and potash developer for ten minutes the entire film simply darkened slightly, but no impression of a star was brought out. The mat marks on the edges of the plate developed out very distinctly, as they usually do. From this experiment I am able to conclude that ozone has no effect on a dry plate. Three other plates, marked respectively *H*, *I*, *J*, were next subjected to the induced electric spark by placing them on a cake of paraffine and resting the terminals of copper wire parallel with the edges. Curious discharges of the spark across the plates were easily developed out, showing that a very faint electric light is sufficient to produce an impression. The sensitive plate thus affords a convenient means of recording the varying forms and shapes of electrical discharges.

In order to confirm my conclusion as to the effect of ozone, I supplied Mr. Hopkins with two other plates of one maker, Cramer 40, 4 x 5, and had him expose one in absolute darkness for five minutes to the ozone, and the other for two minutes. These I placed in a hydroquinone developer (10 grains hydroquinone, 15 grains carbonate of potash to the ounce), and kept them there for

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half an hour, covering the dish during development. Nothing appeared except a slight darkening of the film all over; not a sign of the star I had hoped to obtain was visible. Plates marked *K* and *L* were thus treated.

Taking into consideration the excellent electrical conducting qualities of metallic silver, it is rather surprising to note that its salts, when inclosed in a gelatine film, appear to be such a good electrical insulator.

If electricity is ever to be employed in transmitting photographs by telegraph, it will have to be done by some method of controlling the variations of light and not by any direct action of the current. Mr. Paddock and myself are about to experiment in this direction. The field is an interesting one and there is room for several useful experiments. What I have said is the latest in this line and I trust my work may stimulate others to experiment further.

OUR ILLUSTRATION.

THE frontispiece of this issue of the BULLETIN is an excellent portrait of Mrs. Harrison, the first lady of the land, at the White House, Washington. The original picture was made by Mr. W. H. Potter, of Indianapolis, who also made the portrait of President Harrison which appeared in a recent issue of our journal. It is needless to say that they are examples of the best phases of photographic portraiture in America, and fine specimens of photogravure.

OBITUARY NOTES.

As we go to press we learn the sad news of the death of DAVID COOPER, who was so well known to every photographer in America. In our next issue we shall give particulars of his life and work. He died at Kingston, Jamaica, West Indies, on April 6th last, where he has been residing since last October in search of the health he never recovered.

WE also regret to note the death of Mrs. ABRAHAM BOGARDUS, the wife of the well-known veteran photographer of New York. We extend to our good friend the sincerest sympathy in his bereavement.

OUR PUBLISHERS' OLDEST CUSTOMER.

ABOUT the end of April in the year 1859, there appeared in the counting room of the old store of Messrs. E. & H T. Anthony, at No. 308 Broadway, a slim, pale faced young man, who said he had been originally a reporter on the Troy *Daily Times*, but for the past three years had been in photography. He said he had a capital of $250, with which he proposed to start, in a moderate way, a gallery at 839 Broadway, corner 13th street. That one could succeed so far up-town was problematical; but the young man, then twenty-seven years of age, felt sanguine that industry would prevail. Mr. Edward Anthony gave him a warm greeting, much encouragement, and such credit as he would accept, and George G. Rockwood began business.

Thirty years have passed since then, bringing many changes. Of those whom Mr. Rockwood greeted on that day, not one is now in the firm and only two among its employees. Death has removed the two senior partners, while others have come into the establishment since that date. It is probably true that

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Mr. Rockwood, although not the oldest man by mere years, is the oldest living customer on its books. For thirty years the connection has been unbroken, and his monthly account has run with never a serious friction during that extended term, the amount of the transactions reaching about one hundred and eighty thousand dollars. Mr. Rockwood tells us that he feels as much interest and enthusiasm in his art as on the first day that he went to business, and works with as little fatigue. He poses every sitter, gives close personal attention to all the details of his establishment, and is as prolific of new things as ever. Blessed with a strong physique and hopeful temperament, he hopes to round out many more years of association with his friends, the house of E. & H. T. Anthony & Co. The two process plates of Mr. Rockwood represent him "Then and Now!"





Now in the prime of manhood, we have always found Mr. Rockwood a genial gentleman with untiring energy, truly honorable, and an excellent example of one who

> "Never falters nor abates,
> But labors and endures, and waits
> Till all that it foresees, it finds,
> Or, what it cannot find, creates."

WHAT a mockery of a name is this: The County Court of Culpeper has just refused to grant a license to sell liquor at Brandy Station.—*Richmond State.*

THE office that is seeking the man can't find him, owing to the scrambling crowd of office seekers.—*St. Paul Pioneer Press.*

IF a man can only make his story improbable enough he can always find somebody to believe it.—*Somerville Journal.*

AFFECTION goes into bankruptcy when it marries for money and fails to get it.—*New Orleans Picayune.*

POET—What do you think of my verses? Critic—Too many feet and too little head.—*Texas Siftings.*

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ANTHONY'S
Photographic Bulletin.

EDITED BY

Prof. C. F. CHANDLER, Ph.D., LL.D.,
Aided by ARTHUR H. ELLIOTT, Ph.D., F.C.S.
and a corps of practical assistants.

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Advertisements should reach us not later than the Saturday preceding the issue for which they are intended, otherwise we cannot promise to publish them in the succeeding number. It is also necessary to notify us of any alteration before the date above mentioned, and to state for what period the advertisement should be continued—whether for one, six, twelve or twenty-four issues.

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BUFFALO CAMERA CLUB.

ABOUT twenty members of the Buffalo Camera Club assembled at the rooms in the Buffalo Library, Saturday evening, March 23d, to learn how to make lantern slides, that being the subject of the fifth monthly meeting. Dr. Bernard Bartow was the first speaker. He described a simple method by darkening a window and inserting a kit to hold the negative, placing the camera on a table. He thought it made little difference whether the room was dark or not. He preferred hydroquinone developer. Dr. George Hunter Bartlett, the President, followed, showing an ingenious and novel camera with adjustable negative frame and extra bellows light shield of his own construction, for making slides and reducing and enlarging, and for correcting distortion by tilting the negative. He sometimes found it necessary to tilt the negative to an angle of forty-five degrees, using a stop of *f*/30, which produced a sharp and satisfactory slide. He showed a number of 3¼ x 4¼ detective cameras and some Kodak and vest camera negatives, and slides from them corrected and enlarged or reduced by this process. The slides were in all cases satisfactory and rectilinear.

After the discussion the President showed an 8 x 10 negative of a dark interior made on Carbutt's celluloid film with *f*/30, forty-five minutes exposure. He announced that in this exposure it required almost as much precaution to guard against halation with these films as with glass.

Mr. Frank Adams, of Tucker & Butts, showed the Bausch & Lomb 1889 shutter with the new air cushion to regulate speed; also the new Lilliput Camera.

The discussion next month will be on "Interiors" and each member was requested to bring an interior taken during the month. It was announced that the fifth lantern exhibition would be held Thursday, March 28th.

THOMAS CARY WELCH,
Corresponding Secretary.

ST. LOUIS CAMERA CLUB.

THE regular meeting was called to order at 8.25 P.M. by *President* BAIN, twenty-three members present.

The minutes of the last meeting were read and approved as read.

The annual reports of the President, Secretary and Treasurer and Chairman of the Lantern Slide Committee were read. The Chairman of the House Committee stated that the duties of the House Committee had been very light during the past year and asked to be excused from making a report. The Chairman of the Membership Committee being absent, no report was read from that Committee.

Secretary BUTLER—The report of the meeting of the Executive Committee held at the office of President Bain is as follows:

To the St. Louis Camera Club.

Gentlemen,—At a meeting of the Executive Committee, held on Friday, March 29, 1889, it was decided to recommend to the Club:

(1.) That the initiation fee already paid by Frank Hickman be refunded in consideration of his services as stenographer.

(2.) That Frank Hickman's dues be remitted so long as he continues to act as Assistant Secretary.

(3.) That the Club take the necessary steps to become incorporated under the laws of Missouri.

(4.) That at future meetings candidates for membership should not be present on the evening of election. W. M. BUTLER,
Secretary.

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Members present—Bain, Charroppin, C. M. Alexander.

Upon motion of Mr. C. H. Holland, the report of the Executive Committee was adopted as a whole.

President BAIN—I would request Mr. Collins to draw up the necessary papers for the incorporation of the Club.

Mr. SHERRARD—I understand that there are some magazines and perodicals missing from the Club library. If the Librarian will give me the names and numbers of any books that may be missing I think I can furnish them for the Club.

Applications for active membership from Mr. Charles S. Moffitt and Mr. Charles B. Compton were read and referred.

President BAIN—There were two applications to act upon at this meeting, but as the Chairman of the Membership Committee is absent, we will defer action until the first meeting of next month. The next thing in order will be the election of officers for the ensuing year.

Upon motion of Mr. Withnell, Mr. C. M. Alexander was appointed temporary Chairman.

After balloting, etc., it was found that the following members were elected: President, Robert E. M. Bain; Vice-President, Rev. C. M. Charroppin, S.J.; Secretary and Treasurer, W. M. Butler; Executive Committee, J. W. Dunn, E. C. Jewett, J. B. Holman.

Upon being introduced by Mr. Erker, Mr. Drescher exhibited and explained a shutter for time and instantaneous work, and also a lens, made by the Bausch & Lomb Optical Company, of Rochester, N. Y.

Upon motion the meeting adjourned at 9.30 P.M., to meet Tuesday, April 16, 1889, at 8 P.M.

W. M. BUTLER, *Secretary*.

LYNN CAMERA CLUB.

AT a meeting, held on Tuesday evening, April 2d, the Club gave a lantern slide exhibition. Some excellent slides were shown, among which were slides from Messrs. Darcy, Jeffers, Bacheller and Coates, of the Lynn Club, and also some very fine ones from Messrs. Francis Blake, E. F. Wilder, William G. Reed and E. Milliken, of Boston. About two hundred slides were shown, and a large proportion of the work was of the highest order. The meeting was the most successful of any the Club has ever held. After the regular exhibition a few slides were put through, to select those suitable for the set to be used in "A Glimpse of Ye Old Shoe Town," that is in preparation by the Club. Six of the slides shown were accepted, as follows: "Old Newhall House," "Old Assembly Building," "Boston Street," "Old Sargent House," "John T. Moulton House," "Trevert Rhodes House and the Old Academy Building on Western Avenue." The negatives were made by Mr. Darcy and the slides by Mr. Bacheller. Mr. Drew tried a few slides, made on plates coated by himself, that showed a fine, crisp picture. The increased interest in lantern slides is very encouraging, and the Club will soon be well "under way" in this direction. The next exhibition to be given by the Club will be "Illustrated Boston," prepared by the Boston Camera Club.

AT a meeting of the Lynn Camera Club, held Tuesday, April 16th, it was decided to show the set of slides, "Illustrated Boston," at the hall of the Y. M. C. A., April 26th. These slides were made by members of the Boston Camera Club, and have already been exhibited in New York and Boston, attracting considerable attention and merited praise. They were kindly loaned to the Lynn Club for this exhibition.

This is the first public exhibition of the Lynn Camera Club. The next will probably be "Illustrated Lynn and Vicinity," the work upon the slides for which is at present progressing.

J. W. GIBBONEY,
Secretary.

BALTIMORE AMATEUR PHOTOGRAPHIC SOCIETY.

THE regular monthly meeting of the Amateur Photographic Society of Baltimore was held at the rooms on March 15th, with a pretty full attendance, over thirty members present, and the President, Isaac T. Morris, in the chair. Roll call was dispensed with, as there was to be a slide exhibition, and as little routine business as was possible was the order of the meeting. The committee or jury of award on the prizes made their report, and highly complimented the members contesting for the very efficient work in composition and variety of subjects, as well as the method of handling the negatives in development. To the ladies interested in the prizes did the Committee pay especial praise, and certainly did they deserve it, as, taken all in all, they were certainly fine prints and most excellent negatives, the variety of subjects well chosen, and the composition as perfect as though some

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old master of painting had selected the view to immortalize his name on canvas. The awards of prizes were handsome medals in the shape of watch charms, with the initials of the Society engraved thereon, as also in one instance a detective camera for the winner of shutter work, a lantern for the winner of slides, a camera, with tripod, for the winner of time prize, and for the winner of the prize for the best general work a medal somewhat similar to that of the time work medal.

These medals were of pure gold, and about the size of a silver half dollar, and excited the praise of every one for their artistic beauty, and the winners were more than pleased with their good luck. The jury decided as follows: For the best twelve prints of time work, Harry D. Williar; for the best twelve prints instantaneous work, John H. Trimble; for the best six lantern slides, Daniel Miller; for the best twelve miscellaneous prints, Miss Fannie Robbins. The jury of award were discharged with the thanks of the Society.

Urgent request was made to the members to hand in negatives, so that the House Committee might make slides for the coming May public lantern slide exhibition, which at present promises to be the best that the Society has had yet, as the class of negatives in the hands of the Committee up to this time are better by far than in the past, and as also do the slides made up to the present time surpass those of any previous year, and we are promising ourselves and the public as well that we will have a first-class exhibition this year.

The committee to name officers to be elected for the coming year was appointed, with instructions to report at the next meeting on the 19th of April. Mr. A. S. Murray exhibited his "Clark Detective," as also thirty-nine prints of negatives made at Washington during the inauguration, and fully explained the working of the camera. His exposure was the result of two days' work and developed with hydroquinone. There were only a few not first-class; but he wished to demonstrate what the detective would do, so he showed the full result of two days' work, viz., thirty-nine prints.

Mr. Daniel Miller, with his lantern, threw upon the screen the competing slides, as also a lot of fine ones that were made by different members, but not in competition, and after the exhibition was over, the hour being late, the meeting adjourned till Friday, April 19th.

HARRY C. WILLIAR,
Secretary.

CASE SCHOOL CAMERA CLUB (CLEVELAND).

AT the regular meeting, held Friday afternoon, April 19th, Mr. Fred. A. Coleman gave a very interesting demonstration of the making of transferrotype prints and their transfer to opal glass.

He also exhibited some fine bromide prints of landscapes which showed good judgment in choice of position.

MILTON B. PUNNETT,
Corresponding Secretary.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

REGULAR MEETING, MARCH 12, 1889.

THE meeting was called to order shortly after eight o'clock, *President* CANFIELD in the chair.

The *President*—The first thing of importance to-night is the paper on "The Effect of Electricity on Dry Plates," by Mr. F. C. Beach, which I will ask him to read.

Mr. BEACH—I have been making a few experiments in regard to the action of electricity on dry plates. While it is rather scientific perhaps it may be of some interest to you.

Mr. Beach then read his paper. (See page 246.)

After reading the paper Mr. Beach passed around the specimen plates showing the different results he had spoken of.

Mr. Charles Simpson then showed a novel arrangement for changing plates, especially designed for those carrying a detective camera. As it is often the case while on a day's excursion that the amateur exhausts the supply of plates in the holders, of which he as a rule does not carry over half a dozen, Mr. Simpson's arrangement for plate changing may prove of interest to amateurs using a detective camera, and will therefore be briefly described:

It consists of an ordinary hand-satchel 5 x 10, which holds a couple of boxes of unexposed 4 x 5 plates, an empty box to receive the exposed plates, and a bag made of two thicknesses of black satine. This bag is perfectly light proof, is about 2½ feet long, 2 feet wide, with sleeves on each side, the same having strong rubber bands for the wrists. At the top a tape is fastened, which goes around the neck so that the bag, when being used, is suspended like an apron. The lower end of the bag has an opening, which is partly closed by an elastic band, but through which the satchel can be passed into the bag when plates

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are to be changed. The opening is then closed by a couple of buttons, the hands inserted through the sleeves, the satchel opened, and is held open to its fullest extent by placing a short rod or stick across the opening at one end.

The object of having the satchel inside of the bag is, that in a sitting position, which is preferable, and placing the satchel between the knees, the bag is spread out like a tent, by which abundant working room is obtained; besides, by having the satchel inside the bag, its contents are more easily handled.

Mr. Simpson, after explaining as above, demonstrated the practical use of his contrivance by changing plates before the audience; and it required but a few moments to adjust the bag, change plates and put everything back in the satchel, proving the fact that the amateur, by carrying a small satchel over his shoulder, containing the above described articles, can change his plates at any time and place while on his journey.

Mr. BEACH—How long does it take to change a dozen plates?

Mr. SIMPSON—I tried it last night. In eight minutes I rigged the whole thing up and filled three double plate holders. That included getting ready and all.

A *Member*—What is the material?

Mr. SIMPSON—It is called satine. I have a few samples. If you take it and double it, and hold it up to the light, you can't see a particle of light through it. Take it single and you can see just a trifle of light.

A *Member*—Are you not liable to expose the same plates twice? You have got two boxes, one of exposed plates and the other of unexposed plates.

Mr. SIMPSON—If I put the satchel into the bag I naturally put a box on top in which I am to put my exposed plates. Then I take that box out and lay it alongside while I feel in. I only have one box inside at the time I am changing.

A *Member*—Suppose they shift their positions in carrying the satchel?

Mr. SIMPSON—I look at my box before commencing operations.

The *President*—You examine those by daylight before you commence operations?

Mr. SIMPSON—Certainly; I sit down and have everything in readiness and put them in my bag. I will pass it around.

The *President*—I have here a letter from Mr. M. Carey Lea, accepting his election as a member of this Society. (The President then read the letter.)

New members elected since last meeting of Society are: Messrs. D. K. Young, William T. Clerk, William Schlemmer and Linzee Prescott, Active Members; Doctor I. F. Wardwell, Corresponding Member.

As Honorary Members, Dr. J. M. Eder, Leon Vidal, A. Davanne, Dr. H. W. Vogel, J. Glaisher and M. Carey Lea.

The President stated that certain proposed amendments to the Constitution and By-Laws had been discussed and agreed upon by the Board.

Mr. DAVID WILLIAMS was then introduced by the President, and exhibited some novelties. Among them was a flash lamp, which distributes the magnesium in a fine circular jet in the middle of a strong annular flame of alcohol, the object being to produce a perfect combustion of the magnesium, thus securing a brilliant and nearly instantaneous flash. He exhibited a sample of the film holder, of which he had given a description at a previous meeting. This holder is made by Mr. Barnett, and is extremely simple and easy to use. Mr. Williams illustrated this by inserting a more than usually twisted film while standing before the meeting, without using a table or support of any kind. He described a new arrangement for a finder, which stands immediately over the center of the lens of the camera, and is movable vertically by a small rack and pinion motion. This enables the picture on the ground glass of the finder to cover exactly the same field as the ground glass of the camera. Mr. Williams believes that the slight additional care involved in adjustment is more than compensated by the result. He also showed a tripod, which is capable, by the addition of telescopic joints, of being extended to any height up to 7½ feet. Also a peculiar double flap shutter; a very nice traveling box divided into compartments for holding chemicals and holders; a compact folding 6½ x 8½ camera, and a few other things. He had separate lens boards made for each lens, so that it was only necessary to remove the lens, board and all, from the camera, and substitute another very quickly, without unscrewing the lens from its flange.

The *President*—I understand that Mr. Milburn has one or two novelties which he will kindly exhibit.

Mr. MILBURN—The first thing I have to show you is a new shutter. In order that you may see this properly I will pass it around. With this shutter you can make a time exposure or an instantaneous exposure in

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the one-hundredth part of a second. Here is a valve which you can turn so you can fix the time that it is needed. That is, you can set it for a second's exposure or the tenth part of a second or the one-hundredth part of a second. To make an instantaneous exposure you turn this lever down and set it in that way. It is now set for a one-hundredth part of a second. It is now set for the tenth part of a second. Now for half a second. This is for a full second.

The *President*—How recent is this?

Mr. MILBURN—I really don't know. I think it is within a couple of months.

The *President*—We had one shown here at least three or fourth months ago.

Mr. MILBURN—Did it have the time lever?

The *President*—I think not.

Mr. MILBURN—You see, the advantage of this is, you can set it for different parts of a second or one second, and you can make time exposures too. The shutter also itself acts as a diaphragm. The cost of this size fitted to this same lens is $11.50; of course when it is fitted to other lenses it comes a little higher. I think the extreme cost fitted to any lens is about $16.

A *Member*—Do you know what diaphragm you have when you set it?

Mr. MILBURN—Yes; there are marks here, regular scales, which tell the size of the diaphragm. It is a Bausch & Lomb shutter, and the recent improvement is the air valve attachment for regulating the duration of exposure.

Now, I have a camera here which has two particular features in it, cheapness and good workmanship. A 5 x 7 is sold for $17. I think it is a very good camera. It has a little catch here which is new.

The *President*—Does it reverse?

Mr. MILBURN—We have an outside reversing arrangement. This is the way the plate holder slides in, and after it is in there it locks in. The roll holder would slide in the same manner. For reversing you have this little arrangement here screwed on the side. That is so as to get the weight of the camera in the centre to balance it.

Mr. WILLIAMS—How much do the plate holders cost?

Mr. MILBURN—5 x 7 cost $1.50.

Mr. WILLIAMS—For a double holder?

Mr. MILBURN—Yes, sir.

The *President*—There is a paper to be read by the chairman of the committee, Mr. Stebbins, on "Meta-Bisulphite of Potash."

(Mr. Stebbins then read his report on the "Sulphites of Potash.")

The *President*—The next item of interest on the programme is the demonstration of enlarging on bromide paper by artificial light. Mr. Milburn will explain it to us.

Mr. Milburn then read a paper on "Enlarging on Permanent Bromide Paper" (see next BULLETIN), after which a very successful demonstration was made. The lights were now extinguished. In the optical oxyhydrogen lantern of the Society was placed a 5 x 8 portrait negative, while on the screen was affixed the sensitive paper four feet away. The head of the portrait was 2½ inches in diameter and was enlarged up to life size. A Voightlander euroscope lens was employed. With a vignetting card held in the hand between the lantern and the screen, Mr. Milburn made an exposure of about twenty seconds. Then he gave a second exposure of ten seconds, screening the light from all except the very dense portions of the negative. On developing he obtained a very evenly lighted and harmonious enlargement. The picture was a very pretty child's head. After the demonstration a hearty vote of thanks was accorded to Mr. Milburn for his kindness in conducting the demonstration.

The meeting then adjourned.

OWING to the pressure of preparations for the Centennial Celebration in New York, the answers to "What our Friends Would Like to Know" must be left till the next issue of the BULLETIN.

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1889

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EDWARD L. WILSON,

Editor and Proprietor.

IN presenting my TWENTY-SIXTH PROSPECTUS, I ask the attention of all professional and amateur photographers, and of all who are interested in our wonderful Art, to a few points concerning the conduct of my magazine for 1889.

FIRST. Its local name will be changed to one which will be more in keeping with the wide growth of Photography. *The Philadelphia Photographer* will go out of existence, after twenty-five years of service, and WILSON'S PHOTOGRAPHIC MAGAZINE will take its place. There will be no change in editor, publisher, or owner, nor in the publication, except as to details.

SECOND. The issues will occur on the first and third Saturday of each month, as heretofore. Those of the first will be embellished by an albumen-paper print; those of the third will be embellished by a photo-gravure, photo-engraving, or photo-lithograph print.

SUBSCRIPTION PRICE. For the monthly edition (twelve numbers a year), $3.00 a year; for the semi-monthly edition (twenty-four numbers a year), $5.00 a year. Half-yearly or quarterly at the same rate. Thirty cents per copy. Foreign postage four cents per number extra.

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FOR 1889

UNUSUAL PREPARATIONS are already advanced for informing and diverting our 1889 readers. Every number will be embellished by a rich frontispiece, and will include examples of fine portraiture, splendid character studies, landscape and art lesson selections.

New departments will be devoted to short, terse, practical hints, amounting, at the end of a year, to a splendid book. Some elaborately illustrated articles, both amusing and instructive, on posing and the use of accessories and backgrounds, will be started soon. A series of reminiscent articles in honor of the jubilee year (semi-centennial of our art), will begin in January. A complete manual on painting backgrounds and accessories, by the late veteran background-maker W. A. ASHE, of New York, will appear in chapters. It will be invaluable. The present variety of columns, under the care of the editor, will be continued, and it will be his constant effort to make his magazine maintain its long time position, as *"the best in the world,"* and the cheapest. A world-wide connection enables him to secure and give the choicest the photographic world affords. When you buy instruction secure experience with it.

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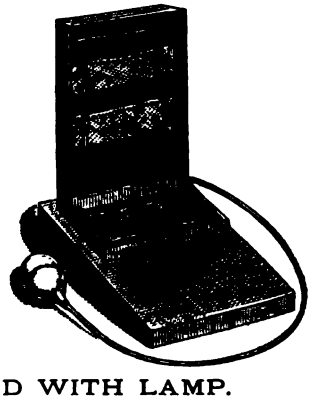
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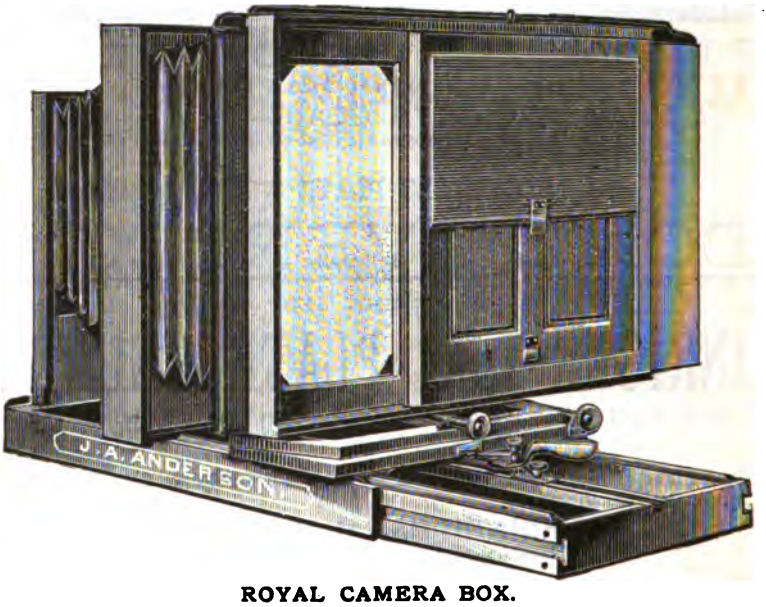
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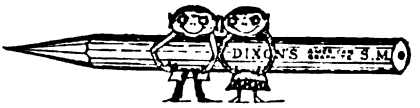


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THE CRAMER PLATES,
Unequalled for Speed and Fine Qualities,
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LANDSCAPE, PORTRAIT AND INSTANTANEOUS WORK.

Full and Comprehensive Instructions for Working in Each Package.
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PHOTOGRAPHIC STOCK HOUSE,
No. 238 FARNHAM STREET, OMAHA, NEBRASKA.

Having a full supply of Photographic Materials, I can furnish Photographers with stock at *nearly Chicago prices*, it also being a saving of four days' time.
Having the experience of nearly thirty years, and keeping the best of help in all branches, I can retouch, print and burnish cards, for the trade, at $1.25 per dozen. All work in proportion. **E. L. EATON.**

IMPORTANT ANNOUNCEMENT to all parties using Photographic Plain Salted Papers. That hereafter I shall prepare both matt and leatherized salted papers by an entirely new process, for keeping its primary color for several days after its being sensitized, it being excluded from light and sulphur fumes in the meantime; and the way to do this is to place it in tin tubes made nearly air-tight. Among its qualities are toughness, a superior matt surface, having a splendid tooth for all kinds of artists' work. For sale by all dealers.
JOHN R. CLEMONS, Manufacturer, 915 Sansom St., Philadelphia, Pa.
E. & H. T. ANTHONY & CO., Agents.

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POSSESS QUALITIES FOUND IN NO OTHERS.



EXTREME ANGLE PERISCOPE,
Aperture F-10. Angle 115°.
RAPID SYMMETRICAL PERISCOPE,
Aperture F-8,
For Portraits and Instantaneous Views.
DETECTIVE CAMERA LENSES.
Write for Price Lists.
R. D. GRAY, 259 W. 27th St., N. Y.

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ALUMINUM,

THE COMING METAL,

is superior to silver and equal to gold in elasticity, durability, brilliancy and lustre for jewelry, ornaments, household utensils, dentistry and all kinds of machinery.

Why not investigate the cheaper production of soft steel and malleable iron castings without annealing? It only takes a postal for full particulars gratis.

THE NEWPORT ALUMINUM AND STEEL CO.,

NEWPORT, KY.

Only Manufacturers of Pure Aluminum in the United States.

$8.50 PER POUND.

High grade Aluminum Jewelers' Bronze, - - - - - - $2.50 per pound.
Nice Paper Weights of same, each, - - - - $1.00, by mail, prepaid.

Pure Aluminum in all shapes and sizes of sheets, wire, plates, patterns, castings, etc.

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PERFECT! PYRO! PRESERVATIVE!

When added to the Pyro Stock Solution it preserves it so that it can be used repeatedly, and also adds to the printing qualities of the negative. SOMETHING ENTIRELY NEW. WILL BE SOLD BY ALL DEALERS.

W. D. GATCHEL, Louisville, Ky., Sole Trade Agents.

ANTHONY'S CHEMICAL TABLETS.

SOMETHING NEW AND PRACTICABLE.

FOR convenience in the compounding of developers, we have prepared the following chemicals in the form of **Tablets,** each tablet containing a specified number of grains, which we believe will be found very valuable, particularly among amateurs, who, by their use, will be enabled to dispense entirely with the troublesome method of weighing for each formula. We put them on the market with confidence that they will fill a long felt want.

PRICE PER BOTTLE.

½ oz.	**HYDROCHINON** (about 54 4-grain Tablets), - - - - -	$0.50
½ oz.	**PYROGALLIC ACID** (about 47 5-grain Tablets), - - - - -	.40
1 oz.	**CARB. POTASS.** (about 87 5-grain Tablets), - - - - -	.20
1 oz.	**SULPHITE SODA** (about 87 5-grain Tablets), - - - - -	.20
1 oz.	**CARB. SODA** (about 87 5-grain Tablets), - - - - - -	.20
½ oz.	**BROMIDE POTASS.** (about 106 2-grain Tablets), - - - -	.20

E. & H. T. ANTHONY & CO.,

591 BROADWAY, NEW YORK.

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PUBLISHED EVERY WEEK.

THE EYE

DEVOTED TO

Art, Photography and Literature.

CONTRIBUTIONS FROM THE BEST WRITERS.

EVERY PHOTOGRAPHER should subscribe for this newspaper, as it is published in the interest of the fraternity. **The most thoroughly independent Photo Journal in America.** It is not controlled by any Photographic Stock House. **The best medium for Advertisers in the United States**—be they Stock Dealers, Dry Plate Manufacturers, Photographers, Operators, or, in fact, any one having anything to bring to the notice of a Photographer or an Employee.

RATES AS MODERATE AS IN ANY JOURNAL.

Advertisements in **"Want"** or **"For Sale" Columns** from **Fifty Cents,** for four or five lines for two insertions; **Twenty-five Cents** for subsequent insertions. Many large Galleries have been sold through the medium of THE EYE during the past year.

Price of SUBSCRIPTION, payable in Advance.

One Year, - - - - -	$2 50
Six Months, - - - - -	1 25
Three Months, - - - -	75

All Advertisements should be received by Friday morning. Make all Drafts, Checks, Express Orders payable to C. GENTILE. All Advertisements for Want Column must be paid in advance.

OFFICE OF THE EYE,

31 EXCHANGE BUILDING, VAN BUREN STREET,

CHICAGO, ILL.

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ABOUT N. P. A. ALBUMEN PAPER.

OUR friends will recollect that about a year ago we invited all the photographers of the country to send us any criticisms or suggestions they might desire to make on this excellent Albumen Paper, that we might send them to the manufacturer, whose aim it was to make it *as perfect as it was possible to do.*

The Paper seems to have given such entire satisfaction to the most eminent photographers in the country that we believe but one suggestion was received, which was promptly forwarded to Dresden.

This is the most *satisfactory* evidence of the superiority of the Paper, and is of more value to guide photographers than if we were to advertise on our own account that it is "ahead of anything in the world."

We certainly believe that it is better than any other, in the *chemical preparation of the Albumen* and in the care with which the first quality is *selected.* It is very easy to make paper a few dollars less expensive to the ream by leaving in defective sheets, but it is *not really cheaper to the photographer.*

The next important point for the photographer to know is how he can be *sure* he gets the right paper in these days of counterfeiting brands. He will be sure in this respect by looking *through* the paper for the *water mark* N. P. A., *which cannot be counterfeited;* while a *brand,* as we said last year, can be put on "while you wait."

The *best is always the cheapest,* when you need it to *use;* though it may not be, if you merely wish it to *sell.*

Photographers will find that some parties will charge them the same price for *inferior papers* that they do for the N. P. A., and will try to persuade them that the other is "just as good." It *is* just as good—and better, too—for them to *sell,* because they make more profit on it; but the photographer who *uses* it will not find it so profitable as he who *sells.*

E. & H. T. ANTHONY & CO.,

591 Broadway, New York.

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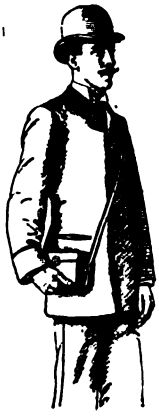
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LILLIPUT CAMERA

—IS THE—

WONDER OF THE DAY.

People marvel as to HOW we do it.



IT IS A FACT!!

WE SUPPLY A

HANDSOME SOLE LEATHER DETECTIVE CAMERA

—WITH—

6 Patent Double Holders;
Non-actinic Lamp;
108 First Quality Dry Plates, 2½ inches square;

FOR $25.

A Few Reasons why you should Buy a Lilliput.

Because of its compactness and beauty; its unlikeness in appearance to a Camera, yet being one with which you can photograph anything that could be done with any other Camera.

That you can make pictures with it unequaled by any other method; also you can finish at any time *one* or more negatives, and see precisely what results you are obtaining.

The Plates are INEXPENSIVE, EASILY HANDLED and MANIPULATED by any one.

It can be used for either INSTANTANEOUS or TIME exposures.

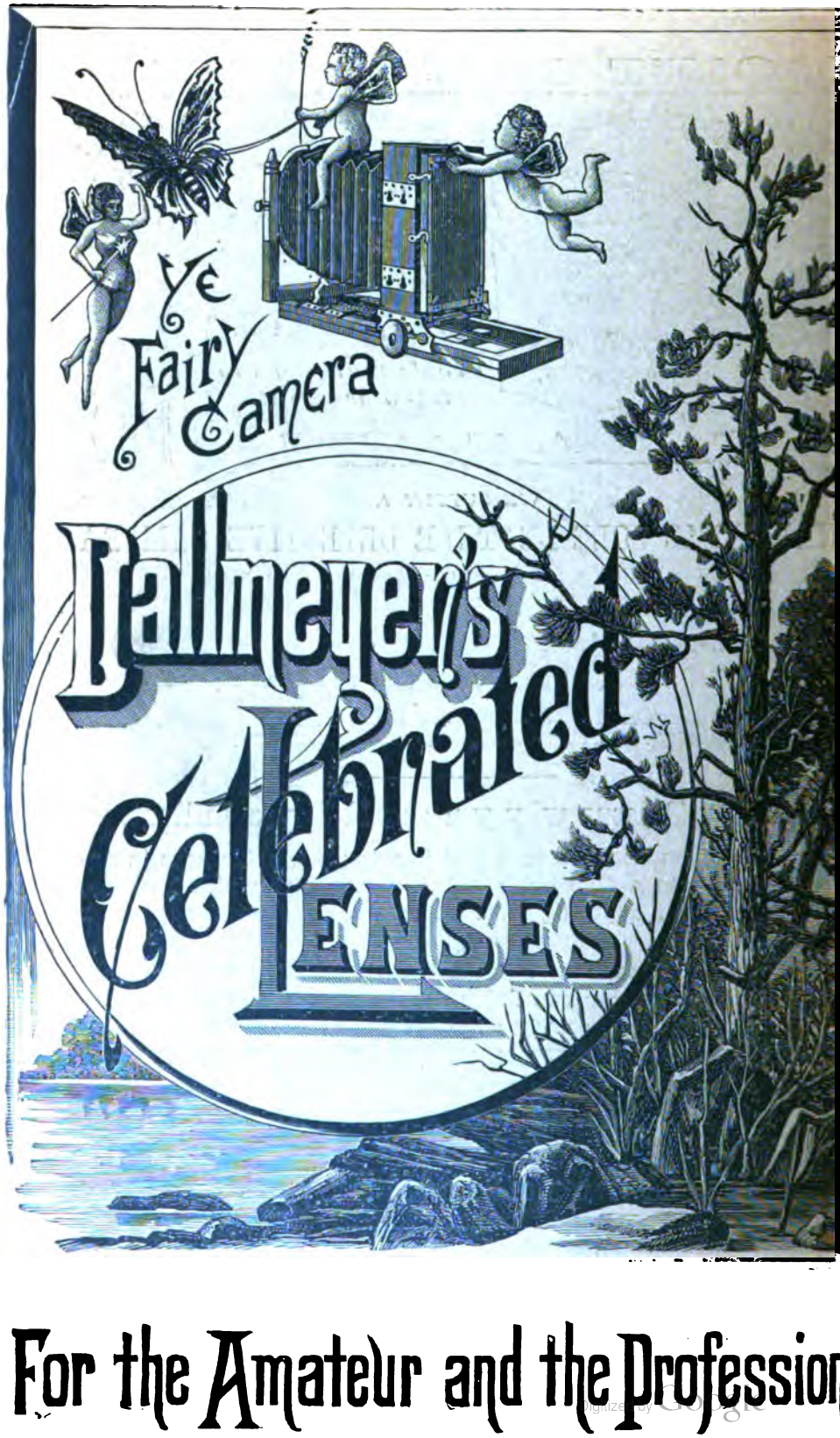
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ILLUSTRATED BOOK OF INSTRUCTIONS WITH EACH.

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For the Amateur and the Professiona

Vol. 20. May 11, 1889. No. 9.

ANTHONY'S Photographic BULLETIN





Edited by
PROF. CHAS. F. CHANDLER, Ph.D. LL.D.
Prof. of Applied Chemistry in the School of Mines,
COLUMBIA COLLEGE, NEW YORK CITY.

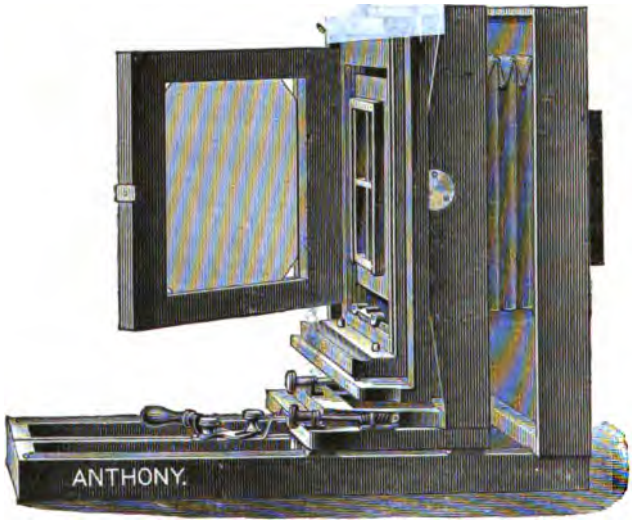
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FOR SALE BY ALL NEWS AND PHOTOGRAPHIC STOCK DEALERS.

CLIMAX CINCINN[illegible] o. 43 B GEM CAMERA.

FITTED WITH [illegible]ISTER" PLATE HOLDER.



For negatives or ferrotypes (admitting of picture 8 x 10 and under, two on 8 x 10, 7 x 10, or 5 x 7 with one lens) with carriage movement on our Patent Rollers, and fitted with the "Benster" Holder.

No.	Price.
43 B. Without swing..	$27 00
43 B. Single swing....	30 00
43 B. Double swing....	34 50

When fitted with four 1-4 Gem Tubes on plate, it will admit of eight on 7 x 10, and four on 5 x 7.

Without swing, fitted with four tubes on plate.....	$43 00
Single " " " "	46 00
Double " " " "	50 00

THE ❋ "CLIMAX"

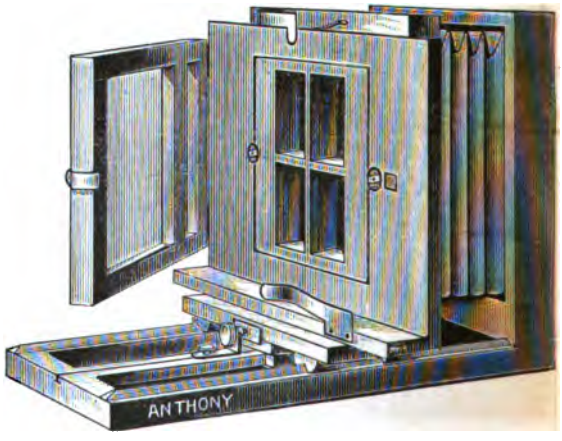
VICTORIA CAMERA.

For making 5 x 7, 4¼ x 5½, and 3¼ x 1¼ pictures, and reversible, and 4 or 8 on 5 x 7 plates with 4 Gem tubes. It is handsomely finished in mahogany, has rabbeted shield and kits. The camera has several improvements over anything heretofore offered to the trade.

PRICE.

Without Lenses, - - $15.00

With 4 ¼ Lenses on Plate, - - - - - 31.50



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STANLEY DRY PLATE.

The Plates now being made in our new Factory are giving most excellent satisfaction, and we earnestly recommend those who wish to use

THE BEST PLATE MADE

to give them a trial.

STANLEY DRY PLATE CO.,

LEWISTON, ME.

FOR SALE BY ALL DEALERS AND BY

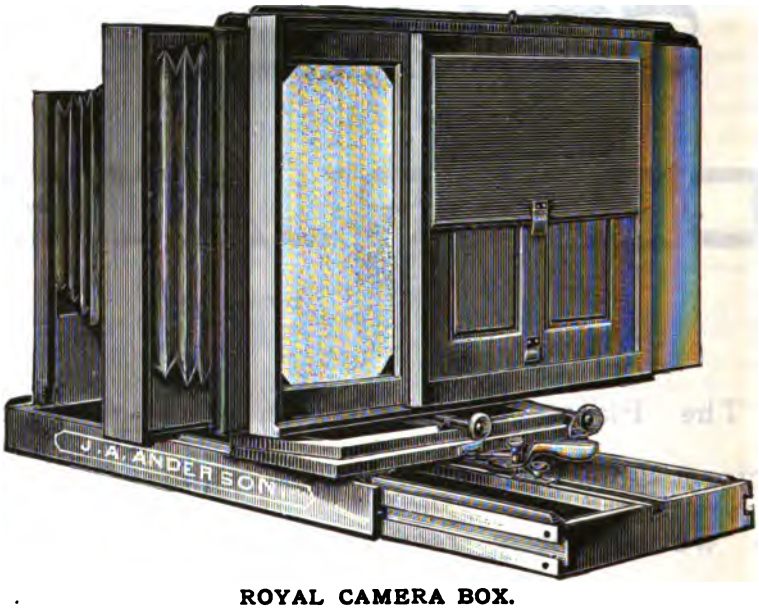
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Manufacturer of Photographic Apparatus,

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ROYAL CAMERA BOX.



GEM POSER.



IMPERIAL COMBINATION CHICAGO CHAIR.

AMATEUR AND PROFESSIONAL OUTFITS ALWAYS ON HAND.

PRICE LIST SENT ON APPLICATION.

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BEST OF ALL

The New Boston Reversible-Back Cameras.

Combining the advantages of other makes with the latest improvements. The finest material and finish. Light and rigid. Superior Swing-Back Movement.

PRICE LIST.

5 x 7.	Single Swing	$28.	
5 x 8.	" "	30.	(Interchangeable Backs.)
6½ x 8½	" "	30.	
8 x 10.	" "	34.	

Double Swing supplied when desired at $2 additional.

THE HAWK-EYE

DETECTIVE and Combination Camera.

Price, $15. Size of Pictures 4 x 5 inches.



AS A DETECTIVE CAMERA.—The HAWK-EYE has the quickest adjustment of speed and focus for instantaneous pictures of moving objects under varying conditions.

AS A VIEW CAMERA.—The HAWK-EYE may be set up on a tripod for time exposures. It is provided with interior ground glass, detachable cover to back, and screw pinion movement controlling the bellows. No focusing cloth is required.

AS A MAGAZINE CAMERA.—The HAWK-EYE will be supplied with an attachment containing a coil of sensitized film sufficient for **100 exposures** without reloading, for $10 extra, or $25; placing **Photography within the reach of all**, it being only necessary to wind a fresh portion of the film into position for each picture, *pressing a catch* making the exposure. The coil attachment may be mailed to the factory or photo goods dealer, to have the pictures developed and printed, or the finishing may be done by the amateur, as desired. The portion of the coil of film which has been exposed may be at any time removed, without taking apart the camera proper. Plate holders or coil attachment, glass plates or films may be used in the same camera. Send for illustrated pamphlet with sample photograph, or inquire of your dealer. **For sale by the leading dealers.**

The BOSTON CAMERA CO., Manufacturers, 36 India St., Boston, Mass.

WHEELER & WILSON'S "New No. 9."

THE CHEAPEST MACHINE

FOR THE FAMILY BECAUSE IT IS

The Easiest to Learn,
The Handiest to Manage,
The Lightest Running,
The Least Noisy,
Made of the Best Materials,
The Best Finished,



THE MOST DURABLE AND DOES PERFECT WORK.
MANUFACTURERS USE WHEELER & WILSON'S No. 12.

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POSSESS QUALITIES FOUND IN NO OTHERS.



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Aperture F-10. Angle 115°.

RAPID SYMMETRICAL PERISCOPE,
Aperture F-8,
For Portraits and Instantaneous Views.

DETECTIVE CAMERA LENSES.

Write for Price Lists.

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RAPID RECTILINEAR, WITH IRIS DIAPHRAGM.

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Send for Catalogue.

NEW ENGLAND AGENT FOR THE

HOOVER PLATE.

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EUREKA BURNISHER

FOR IMPARTING A BEAUTIFUL FINISH TO PHOTOGRAPHS.



THE superior qualities of this Burnisher consist: first, of first-class workmanship in its construction; second, the Roll can be turned back in a second from the Burnishing Tool, so that the Tool can be dressed or cleansed, and the Roll be immediately replaced ready for operation without having to handle hot plates, etc., as in the other burnishers.

It has also the removable Burnishing Tool patented by W. G. Entrekin. The Burnisher can be heated with gas, coal oil, or alcohol. Another great advantage: it will produce a beautiful satin finish to photographs, and any boy can work it.

E. & H. T. ANTHONY & CO., 591 Broadway, New York, Agents.

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THE LATEST.

ANTHONY'S

CLIMAX NEGATIVE FILMS,

TRANSPARENT AND FLEXIBLE.

For Portraits, Landscapes and Drop Shutter work. **Weight and Space reduced to a minimum.** Fourteen dozen Films weigh less than one dozen Glass Plates. They are developed in the same manner as Dry Plates. They reduce halation. They can be printed from either side of film.

ANTHONY'S CLIMAX NEGATIVE FILMS are made upon a substance of recent discovery, which is admirably adapted to the manufacture of a **Perfect Negative Film,** combining **Transparency, Strength** and **Toughness of Composition,** which renders them capable of being made so thin as almost to eliminate the question of weight and bulk in carrying. They are made with a **fine mat surface,** which **reduces halation,** and are **perfectly impervious to water.** Can be sent by mail without danger of breakage.

PRICES PER DOZEN.

3¼ x 4¼,	$0 65	5 x 7,	$1 65
4 x 5,	95	5½ x 7,	1 75
4½ x 5½,	1 12	5 x 8,	1 80
4½ x 6½,	1 30	6½ x 8½,	2 50
4¾ x 6½,	1 40	8 x 10,	3 60

All larger sizes made to order only, at fifty per cent. additional to price of plates.

Postage extra.

A TRIAL OF THESE FILMS WILL DEMONSTRATE THEIR PRACTICAL VALUE.

FOR SALE BY ALL DEALERS.

MANUFACTURED BY

E. & H. T. ANTHONY & CO.

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Sole Agents for the United States.

DETROIT, MICH.,

ALLEN BROTHERS,

Yours, etc., (Signed) Reed & Bock.

Gentlemen,—The No. 6 B Suter Lens which we ordered of you about one year ago has proved worthy of all the praise we can give it. We have made cabinets of babies in one-quarter of a second, and 4 x 17-groups in from twelve to sixteen seconds—well stopped down, all clear and crisp—as good, we think, as any less in use, if not better; and for out-door viewing and grouping it is A No. 1. The more you can sell the more good you will do for photography. We expect to order a C Lens in a few days.

Allen Brothers, Detroit, Mich.:

Circleville, O., October 5, 1888.

Very respectfully, (Signed) I. M. Brandtel.

Dear Sirs,—I have for the past three years used a THREE B SUTER Lens for out-door work, and FIVE A for interior work, and, so far as work is concerned, I would not exchange a Suter Lens for any other lens, regardless of price.

Allen Brothers, Detroit, Mich.:

Hamilton, O., October 13, 1888.

MORE GOOD WORDS FOR THE SUTER LENS.

REVISED PRICES OF

LOCKWOOD'S PHOTO CLIPS.

(Patented.)

These are the most desirable articles of their class to be found in market, being substantially made in the best manner, and the fact that they never break or give way in any particular must recommend them to all. The springs are made of first quality brass wire and the wood is very hard and durable. They are made in two sizes and various styles, as follows, the cut showing exact size of the large clip.

No. 15 A	Small, 2½ inches, plain, chamfered,	per gross,	$4 80
" 15 B	" " with hook,	"	5 50
" 15	" " and hole chamfered,	"	6 00
" 1	Large, plain,	"	6 00
" 14	" with hook,	"	6 80
" 17	" " hole chamfered,	"	7 00
" 18	" " hook and hole chamfered,	"	7 20

E. & H. T. ANTHONY & CO., Sole Agents.

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FAMOUS  LENSES.

The PORTRAIT, EXTRA RAPID, RAPID and WIDE ANGLE EURYSCOPES, and NEW SINGLE LANDSCAPE LENSES; also the ever popular

DARLOT LENSES.

☞ **Those imported by us are marked "B. F. & Co." on the barrel, a sure proof of their genuineness and superior quality.**

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BENJAMIN FRENCH & CO.,

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Descriptive Catalogue Free. BOSTON, MASS.

THE AIR BRUSH



APPLIES any dilute liquid pigment by jet of air. Work is far more rapid than crayon; equally artistic. Adopted by hundreds of the best portrait artists in the United States. Gold Medal Franklin Institute; Special Medal American Institute.

SEND FOR DESCRIPTIVE PAMPHLET.

AIR BRUSH MANUFACTURNG CO., 52 Nassau Street, Rockford, Ill.

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OF ALL KINDS

FOR PROFESSIONALS AND AMATEURS.

Full Lines of Leading Makes of

Cameras, Dry Plates and Card Stock,

AT THE LOWEST MARKET PRICES.

DARK ROOM FOR USE OF CUSTOMERS.

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Opposite Delavan House, 582 BROADWAY, ALBANY, N. Y.

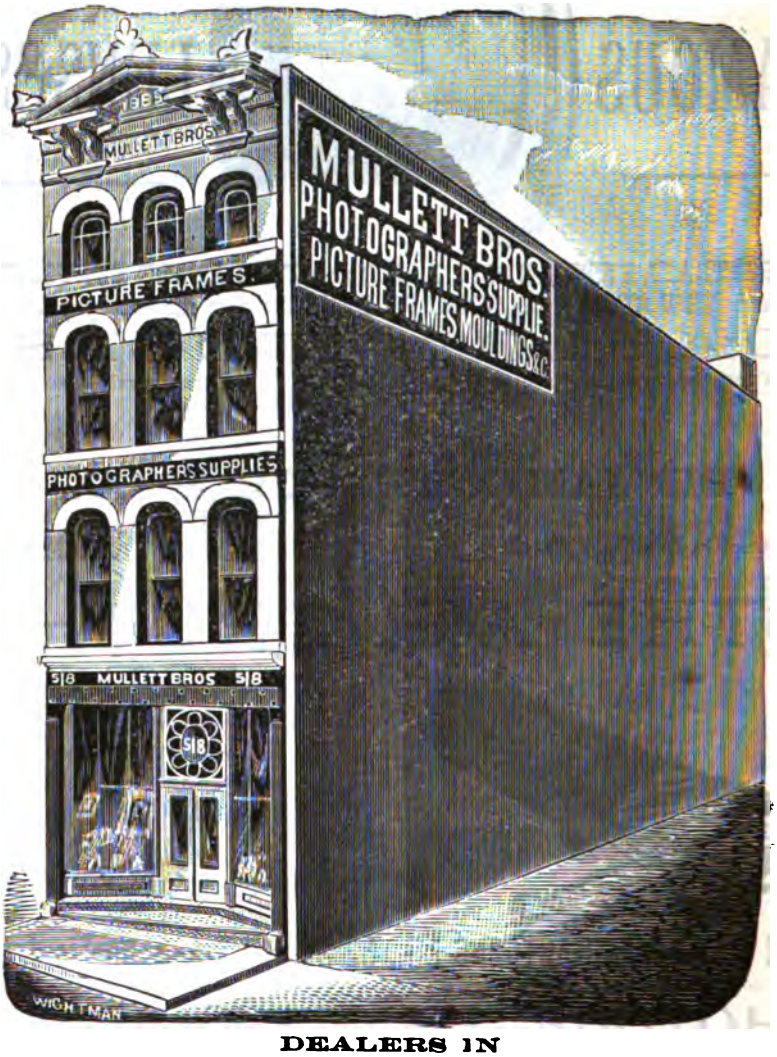
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FIVE FLOORS, 124 FEET DEEP.



With a Splendid Line of New and Desirable Goods, we invite your orders.

DEALERS IN

Photographic Supplies,

PICTURE FRAMES,

MOLDINGS, ALBUMS, GLASS,

STEREOSCOPES, ETC., ETC., ETC.

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LAFAYETTE W. SEAVEY'S SCENIC STUDIO.

REMOVAL!

On May 1, 1889, my Scenic Studio and workshop was removed to my new and commodious building at the corner of

East 142d Street (Cheever Place) and Walton Avenue, New York City.

I am glad to be able to announce to my customers and the public generally, that the rapid growth of my business has necessitated this change of location. I have, in order to obtain adequate accommodations and facilities, been compelled to erect an entire new building, specially planned and adapted to my needs. I shall have unrivaled manufacturing and shipping facilities, and ample room for the prompt execution of all orders, in all the various departments of my business.

I cordially invite photographers visiting New York to inspect my new premises, which to them will prove one of the most interesting sights of the Metropolis. They are located within two minutes' walk of the 138th Street Union Depot of the N. Y. & Harlem R. R. and the N. Y. Central and Hudson River R. R., and 7 minutes by train from the Grand Central Depot at 42d St.

TO REACH THE STUDIO from down-town, take a train at Grand Central Depot, via N. Y. & Harlem R. R. Fare, five cents.

The studio can also be conveniently reached by the Third Avenue Elevated.

Thanking you for past favors, and soliciting a continuation of the same, I am,

Yours sincerely,

LAFAYETTE W. SEAVEY.

CYRUS PROSCH'S NEW SHUTTERS

PROSCH RAPID,
DUPLEX STEREOSCOPIC,
DUPLEX DETECTIVE,
DUPLEX TRIPLE IMPROVED.



DUPLEX WITH SILENT TIME.

The Prosch Rapid is capable of making exposures so rapid as to test to the utmost the skill of the most expert operators to develop. It is only for instantaneous work, such as taking horses at most rapid gait; athletes running, jumping; divers, etc., etc. Although operating between the lenses it is entirely different from the Duplex. Made in two sizes: No. 1, 1-inch opening, price, $18; No. 2, 1¼-inch, $22.

The Duplex Stereoscopic fills perfectly the want of a time and instantaneous shutter for Stereoscopic work. It consists of two Duplex Shutters on one frame, operated by one lever and one release, and consequently gives two identical exposures. Made in two sizes: No. 1, ¾-inch opening, $18; No. 2, ⅞-inch opening, $19.50. Lenses are arranged at 3¼ inches from centers; but this will be increased, if ordered, up to 3¾ inches for $1 additional. Rotary Stops, $2; Flange Collars, when required, 75 cents. Silent time attachment, $1.50; combined with slow instantaneous, $2.

The Duplex Detective is a reliable, compact and efficient Shutter for Detective Cameras, which can be used for both time and instantaneous work. Release for instantaneous is by a push trip (pneumatic if desired). Time exposure mechanism is same as silent self-setting time to regular Duplex Shutters, by which instantaneous exposures can also be made by pressure to pneumatic bulb. Price, including fitting to Camera and Rotary Stops, $15.

THE EVER POPULAR DUPLEX SHUTTER still retains its lead of all others, whether of home or foreign production. The Rotary Stop is considered by an army of users an indispensable adjunct to the shutter, likewise the silent, self-acting time, and slow instantaneous attachment, which operates shutter by direct pressure of air through pneumatic device.

DUPLEX ENLARGED REVISED LIST.

Numbers.....	00	0	0A	1	1A	2	2A	3	3A	4	5	6	7
Openings, inch...	⅝	¾	1	1⅛	1⅜	1½	1⅝	1⅞	2	2¼	2½	3	3½
Price.....	$11.50	$12	$12.50	$13	$13.50	$14	14.50	$16	$19*	$20*	$22*	$24*	$27*

* Including silent time attachment.

Rotary Stops up to No. 1, $1.50; above that, $2. We do not make Rotary Stops for sizes larger than No. 2A, except by special agreement. Silent time attachment same prices as Rotary Stops.

When Flange Collars are required, as on Ross and other lenses similarly mounted, 50 cents extra. Shutters can be furnished for most standard lenses, fitted ready for use, but it is to customer's interest to forward his lens tube with order, otherwise perfect fit is not guaranteed. These shutters are owned and manufactured solely by the Prosch Manufacturing Co. None genuine without our stamp. Circulars containing full information forwarded on application.

PROSCH MANUFACTURING CO.,

No. 389 BROOME STREET, NEW YORK.

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FOR SALE BY ALL PHOTOGRAPHIC STOCK DEALERS.

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SPECIAL ATTENTION IS INVITED TO THE

LARGE STOCK OF SUPERIOR

Cards and Card-boards

MANUFACTURED BY

A. M. COLLINS

Manufacturing Company,

PHILADELPHIA,

AND FOR SALE BY DEALERS IN

PHOTOGRAPHIC SUPPLIES.

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THE

LILLIPUT CAMERA

—IS THE—

WONDER OF THE DAY.

People marvel as to HOW we do it.



IT IS A FACT!!

WE SUPPLY A

HANDSOME SOLE LEATHER DETECTIVE CAMERA

—WITH—

6 Patent Double Holders;
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108 First Quality Dry Plates, 2½ inches square;

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It can be used for either INSTANTANEOUS or TIME exposures.

These Negatives can be Enlarged to any Size Required.

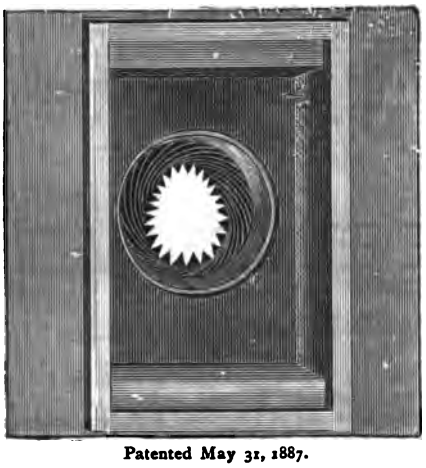
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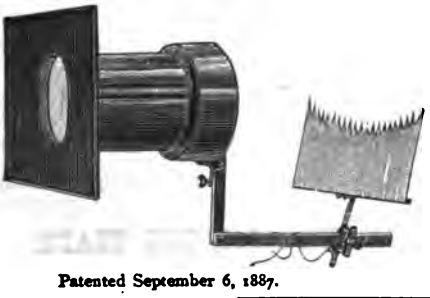
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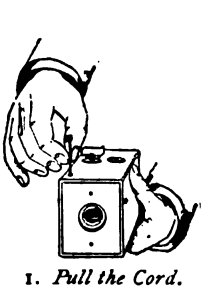
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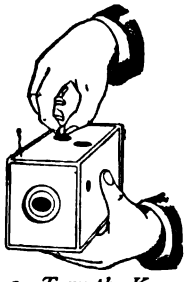
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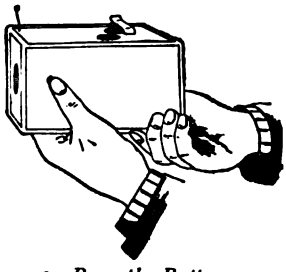
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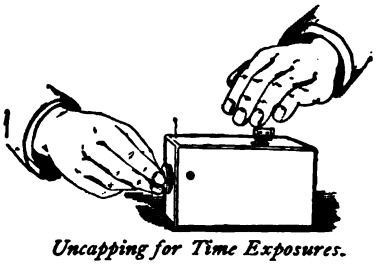
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ANTHONY'S
Photographic Bulletin.

Prof. CHARLES F. CHANDLER, Ph.D., LL.D., *Editor.*
ARTHUR H. ELLIOTT, Ph.D., F.C.S., *Associate Editor.*

MAY 11, 1889. Vol. XX.—No. 9.

THE CENTENNIAL IN NEW YORK.

If every professional photographer had ordered the weather to be arranged for him, if every amateur had interviewed "Old Probability" in order to get the most favorable meteorological circumstances, a more perfect condition of sunlight and atmospheric circumstances could hardly have been conceived, than fell to the lot of photographers during the three days of celebration in New York City.

Monday morning dawned a little uncertain, but before 10 o'clock the mists rose, and a most perfect day, photographically, bathed New York Bay in sunshine with an atmosphere clean and crisp from the recent rains.

The ceremonies of Monday included the voyage of the President from Elizabethport to Wall Street, New York, and the reception afterwards.

The naval parade up the North River, in the afternoon, was also a part of the programme, but the interest being divided after the landing of the President, this part of Monday's pageant was not as interesting as the earlier ceremonies.

New York Bay, with the cities of New York and Brooklyn and Jersey City, gives always a beautiful picture on a bright Spring day; but we are satisfied that many generations will come and go before there will be another such a picture as was seen between Staten Island and the Battery on April 29, 1889. This immense sheet of water was literally packed with craft of every kind, from the isolated individual in his Rob Roy canoe, to the great three-decker, packed with its thousands.

On every side we saw the photographer and his camera. Some on tugs with large cameras and lenses to correspond, others here and there in the mass of humanity on the large steamers with detectives and hand cameras, getting shots at every conceivable object.

One of the most pleasant expeditions on this eventful occasion was that arranged for by the Society of Amateur Photographers of New York. They chartered an excellent propeller, the Philadelphia, and a more delighted crowd of amateur photographers never sailed together. Cameras of every style and make, from the little 4 x 5 outfit and the detective, to the more elaborately finished and large 8 x 10, were to be seen upon the boat. From the time of starting, 9.30 A.M., to the finish, the rattle of the reversing of holders and the click of

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the shutter was to be heard on every side. We have no doubt many dozens of plates were spoiled, but we are equally satisfied that many dozens of good negatives were captured on that beautiful day.

Of the objects to be photographed there was an unlimited number. The new iron-clads, the Chicago, Brooklyn and Boston, the good old Kearsarge, and others, gave excellent pictures for many cameras. When the President passed in the United States Steamship Dispatch and the yards were manned, a scene was presented that will never be forgotten by those who witnessed it, and thousands of cameras caught the beauty of it. The salutes fired by the iron-clads also gave some excellent pictures for the photographic plate, and we have already seen some good negatives of this particular phase of Monday's ceremonies.

On Tuesday the military parade was another excellent opportunity to obtain fine instantaneous pictures. The day was perfect and the parade unusually interesting from the variety of uniforms worn by the various State regiments, especially those from the South.

Of the land parades, that of Wednesday will leave the most beautiful memories to those who saw it. We did not believe until that day that New York City contained so many men who were interested in such a wonderful exhibition of artistic work as was seen in the various tableaux. And we must give the palm to our German friends for their patience, skill and good taste, as displayed in the elaborate pictures presented by the Arion and Liederkranz societies. We sincerely hope that some perfect photographs of these wonderful scenes were obtained on May the first.

When we think of the various events, the naval review, the military and the civic parades, when we recall the beautiful triumphal arches under which the processions passed, and we remember the marvelous display of bunting, flags and banners, we cannot but regret that photography is incompetent in one very important feature in recording such events—the inability to catch the colors which gave the chief charm to the decorations, caught as they were in the gleams of sunshine, wafted on the breeze, and filling the hearts of spectators with patriotic zeal. Those who saw the parades will remember them chiefly from the wonderful display of color to be seen on every hand, but the photographic plate will give but monochrome. Furthermore, the ordinary plate is positively incorrect in its record of just those colors that gave such brilliant effects to the scenes of the Centennial. Let us hope that before another century the genius will arise that shall give us the means of photographing in colors.

EDITORIAL NOTES.

THE semi-centennial jubilee exhibition will be held in Berlin during September and October next, and our esteemed correspondent, Dr. H. W. Vogel, is very anxious that the United States shall be well represented. All exhibits should reach Berlin by August 11th next, and our publishers have kindly consented to take care of the shipment of any pictures that may be sent to the exhibition through them. Those intending to exhibit should notify us as early as possible, that we may have an idea of the size of the exhibit. We hope that the United States will be well and largely represented.

THE "International Annual" for 1889 is in the press, and is equal, if not superior to, its predecessor. The editors have been hard at work arranging a

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large number of contributions from the most prominent photographic writers in the world. A number of new tables have been specially made for the volume, which are expected to be useful to the working photographer, both professional and amateur.

It is estimated that between thirty-five hundred and four thousand pictures of the Naval Parade were taken on Monday, April 29th; and the majority of these were captured by one hundred and fifty cameras on board the boat Philadelphia with the Society of Amateur Photographers.

At a recent meeting of the New York Camera Club, Mr. Alexander Black, of the *Brooklyn Times*, gave an excellent exhibition of lantern slides, illustrating "Life Through a Detective Camera." The pictures were amusing as well as instructive. Mr. Black's collection is unique and well worth seeing.

We have received from Professor E. C. Pickering an excellent film positive of the late total solar eclipse as seen in California. We tender our best thanks to the Professor for his kind remembrance, which is as interesting as it is well done.

From Dr. P. F. Fulmer, of the High Falls Hotel, Dingman's Ferry, Penn., we receive the following announcement, which will be of interest to our tourist readers: "Many amateur photographers make this their summer home, and are most enthusiastic in their praise of the many picturesque and charming scenes. A dark room and all desirable advantages are given for photographers."

LETTER FROM GERMANY.

BY DR. H. W. VOGEL.

Lightning Photography for Practical Portrait Work—Kurtz's Reproductions from Oil Paintings—New Developers—New Lenses—Chloride of Silver Developing Paper—The First Orthochromic Photography—Color Sensitive Photographs in Germany.

What is the latest news in photography? Answer. Daylight is set aside. Flash pictures are ruling. Now, it is an old proverb that says: "Nothing is eaten so hot as it is cooked." Still, the matter deserves attention, coming from one of the most distinguished photographers, Herr Van Delden, in Breslau. He presented the "Verein zur Förderung der Photographie" here with a number of magnesium flash pictures. They were taken during a masquerade ball with the Schirm magnesium flash apparatus, and were of such a perfect execution that they called forth the greatest astonishment of all present.

Messrs. Selle Lindner and Haberlandt praise the pictures, representing single full figures, and even groups of six persons, highly, and particularly the harmonic lighting is generally and greatly admired.

They illustrate most completely the capability and accomplishments of the magnesium flash-light and called forth a lively discussion about its practical and profitable application in Berlin at fancy dress balls, etc., in private circles as well as in public halls, and to which the writer called attention several months ago. My opinion, after Delden's success, met with even greater approval than at that time.

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The Schirm magnesium flash apparatus is described in the *Photographische Mittheilungen*, July number, 1888. It consists of lamps with alcohol, of which one is placed on the light side, the other on the shadow side of the subject. For groups a third lamp is required. All three are connected by thin tubing, through which by means of pneumatic pressure the magnesium powder is blown simultaneously into the flame. The effect is instantaneous. The matter is not only of significance for pictures to be taken at night, but also for ordinary portrait work. Herr Van Delden says that he is building a new studio now, and exclusively for magnesium flash pictures. Daylight, being too uncertain in this country, does not come into consideration. The place has only one window, is not away up-stairs, but on the first floor, where at any time of the day and in any state of weather photographs can be taken, and at that, "instantaneously." You will say this has been accomplished a long while ago with electric light. But the expense of such an electric arrangement is about $2,500, whereas with a magnesium lamp it is only $25, and instantaneous pictures have never been made with electric light. Herr Van Delden's example has proved so successful that here in Berlin such a flash-light studio is also in course of construction.

The same night that Herr Van Delden presented his flash-light pictures, quite a number of reproductions of larger size, made by Kurtz in New York, met with general acknowledgment. The pictures were made on azalin plates, through yellow glass, and particularly some of them, giving an excellent reproduction of all the color gradations, were greatly admired. Most conspicuously in comparison with similar reproductions in the market is Makart's "Hunt of Diana," in which the trees seem to be completely worked out, even to their greatest depth. The difficulties incident to a photographic view after a forest scenery by Corot, held in the deepest color, were surmounted in a similar way. The reproductions of some pictures, by Tadema (Reading Homer), the Judgment of Paris, by Rubens, and some desert scenery, by Remington, were just as successful.

Lately I wrote to you about a developer. Different new ones have appeared in the mean time, about which the opinions are still divided. Since the chemists are occupying themselves more generally with photography, they investigate every new organic substance as to its developing capacity, and indeed, many good things are brought to light that way, but the principal thing is always the correct formula. Hydroquinone was tried in vain for years before the correct formula was discovered. At present it is the ruling developer, placing all others in the shade.

The very latest is now the application of the para-phenylenediamine, the para-tolylenediamine, and the xylylenediamine, for the development of photographic pictures, by Dr. M. Andresen, in Berlin. Patented in the German Empire August 1, 1888.

This invention concerns the application of—

Para-Phenylenediamine ..... $C_6H_4\begin{cases}(1)\ NH_2\\(4)\ NH_2\end{cases}$

Para-Tolylenediamine ..... $C_6H_3\begin{cases}(1)\ NH_2\\(4)\ NH_2\\(5)\ CH_3\end{cases}$

and

Xylylenediamine ..... $C_6H_2\begin{cases}(1)\ NH_2\\(2)\ CH_3\\(4)\ NH_2\\(4)\ CH_3\end{cases}$

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in diluted aqueous, weakly alkaline solutions for the development of photographic pictures in films containing silver haloid.

According to the declarations of the inventor, this developer acts more powerfully than all hitherto known developing solutions. The negatives obtained by the same, if correctly exposed, are said to be of great clearness and eminent gradations of tone, not only in the high lights, but particularly in the middle tones and shadows; further, in consequence of the peculiar dense structure of the silver deposit they have excellent printing qualifications.

The ready mixed alkaline developer shows only a slight discoloration after several weeks' exposure to the air.

In the field of instantaneous cameras there are just as many novelties as in that of the developer. Every day a new camera will appear under some strange sounding name, and it is almost impossible to examine and try all the different constructions. The camera of to-day is perhaps old after four weeks. The latest camera, "Probata," excels by the excellent objective anastigmat, which has been calculated by the efficient astronomer, Miethe, one of the inventors of the flash-light (Gädicke and Miethe).

This camera has already been described in the *Photographische Mittheilungen*, XXIV, page 173, but only lately it is manufactured in large quantities by Mr. Hartnack, of Potsdam. I reported to you about it in the November number of 1888. The best about the anastigmat is, that one lens actually represents two, shortening or extending the focus by sliding the lenses closer together or wider apart. It can be used as a light-strong aplanat if the lenses are moved apart, and will then show 95 mm. focal distance and 150 mm. diameter picture surface; further, as a wide-angle, if the lenses are screwed together as much as possible, it has then a picture surface diameter of 170 mm. The second, or anastigmat, wide angle—landscape objective No. 1—has 116 mm. focal distance, covers with full opening a 9 x 12 cm. plate, and has, with a small stop, a picture surface diameter of 230 mm. The last mentioned objective is recommended very much for the Camera "Probata," furnishing very good fully exposed instantaneous pictures, and costing only 40 marks.

Color sensitive (so-called isochromatic or orthochromatic plates) come more and more into general use here. Gädicke mentioned, in the last meeting of our Society, that he has sold only colored plates during the last half year. They have the same sensitiveness as the ordinary plates, the same keeping qualities, and are developed in the same style. There is only this difference in the result, that the color sensitive plates give far better negatives for portrait work, and do not require half as much retouching in the yellow and spotty places as the ordinary ones.

Chloride of silver gelatine paper is more and more applied for the production of quick copies.

Recently I made some views with magnesium light in a private Society. I cleaned the same by placing them in a concentrated solution of chloride of sodium, washing in water for fifteen minutes, drying in alcohol, and copied them upon chloride of silver developing paper, with 12 cm. magnesium, at a distance of 25 cm., and thus I was in the position to present a proof to the audience in thirty-five minutes.

In the *Photographic News* of April 19th I read a notice of Mr. Ives about his orthochromic chlorophyl process. He says that his claims were unqualifiedly

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endorsed by the Franklin Institute, "which awarded me the John Scott legacy medal for the discovery and publication of the first practical working process of photographing colors in their relative degree of light and shade, as they impress the eye."

I have the highest respect for the works of the Franklin Institute, but I cannot conceal the fact that corporations can err as easily as a single man.

The senate of a German university, for instance, gave a very honorable title to a gentleman for an invention, not made by him, but by somebody else. This happens very often here and it can also take place in the United States. I claim that I have taken the first isochromatic or orthochromatic photograph (a blue ribbon fastened on a yellow one) in the year 1873, five years before Mr. Ives, and that I have published the *modus operandi* (*Photographische Mittheilungen*, December, 1873, p. 237). Objection has been made, that I had taken only ribbons, and not a picture. That makes no difference at all.

Daguerre remains the inventor of the daguerreotype, even if his first plate would be no more than the reproduction of a blackboard with white characters on it.

BERLIN, April, 1889,

[*By our Special Correspondent.*]

ENGLISH NOTES.

MARCH is, for the photographer, as well as for nature, a month of preparation. Hence it is well that at this period of the year should be held the annual "Conference," initiated by the London Camera Club, and the Crystal Palace Photographic Exhibition. At the one the worker will get good advice, and at the other he will be able to select from an immense variety of apparatus.

The Camera Club Conference was again held at the Society of Arts, John street, Adelphi, the days of meeting being Tuesday and Wednesday, March 26th and 27th. A "smoking concert," held on the Monday evening in the club rooms, served to "bring people together," and to allow of the inspection of a fine collection of pictures which had been hung on the walls.

Captain Abney, C.B., F.R.S., took the chair each day at the Conference, and about one hundred friends were present. The discussions were short, as the papers were numerous and lengthy, and had to be "got through." They were, however, of high quality.

The work done was as follows:

Tuesday, March 26, 1889; time, 2 to 6 P. M.—Mr. Conrad Beck, "Depth of Focus;" Mr. J. Brett, A.R.A., "The Relation of Photography to the Pictorial Art;" Mr. P. H. Emerson, B.A., M.B., "Science and Art;" Mr. Lyonel Clark, "A Comparison of Developers;" Captain W. de W. Abney, C.B., R.E., F.R.S., "The Law of Error and Photography;" Mr. T. R. Dallmeyer, "Shutters;" Mr. G. Lindsay Johnson, M.A., M.B., "A Shutter Speed Measurer."

In the evening there was an exhibition of lantern slides, small electric arc-light being employed. But no electric light for my slides, if you please! It makes the best slides look threadbare and thin. The slides shown included those sent by the American societies to the Camera Club, and also Nottman's collodion slides of scenery on the Canadian Pacific Railway, etc.

Wednesday, March 27th, 2 to 6 P. M.—Mr. C. H. Bothamley, "Chemical Changes from the Modern Point of View;" Messrs. A. A. Common, F.R.S.,

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and A. Taylor, "Irradiation in Astronomical Photography;" Mr. A. Dawson, "The Field of Photo-gravure;" Mr. W. T. Wilkinson, "Dry Plates for Photo-Litho and for Collotype;" Mr. A. Pringle, "Photo-micrography;" Captain A. M. Mantell, R.E, "Photography Applied to Military Purposes."

7.30 P. M.—Annual club dinner for members and friends at the Holborn Restaurant.

The dinner was a popular feature, and when Mr. Jerome Harrison proposed the toast of "The Camera Club," and coupled with it the names of Captain Abney (President) and Mr. George Davison (Honorary Secretary), the applause was long and hearty.

As to the general work done during the meeting, we can only touch on a few of the salient points.

Mr. Brett said that "Art" and photography had little in common. But, then, his idea of Art was that Nature is, on the whole, somewhat of a blunderer, and that it is the province of the artist to "improve" on her doings. Well, it may be so; but let the artist be truthful, at least, and when he shows us his picture of, say, Vesuvius, with the mountain sloping at an angle on which it would be impossible for the lava-flows which compose it to have solidified, let him frankly label it, "Vesuvius, as improved by Jones." As a photographer, I declare that the greatest debt which I owe to photography—next to the fact that it has taught me to look for and to see beauty in Nature—is a desire that every picture should be *truthful*. Ideal landscapes I can admire, but do not call them by the names of places of which they are only "adaptations."

Mr. Lyonel Clark still thinks pyro-ammonia the best of all developers (and I agree with him). Mr. Dallmeyer said the diaphragm slit (with a rectilinear lens) was the best place for the shutter. He had tested a new shutter invented by Mr. Lyon, and found that it had the great advantage of remaining fully open during a great proportion of the total time of exposure. Dr. Johnson's "speed measurer" was a clock whose hands made one complete revolution (or more, as required) each second.

The Crystal Palace Photographic Fair.

Take a gigantic green-house half a mile long and two or three hundred feet in height; spread fountains, flowers and statuary liberally over the interior; and then persuade all the dealers in photographic apparatus to arrange their goods on a series of handsomely fitted up stalls running the entire length of the great nave (nearly a quarter of a mile), and you will have some idea of the Photographic Exhibition at the Crystal Palace, which has now, thanks to the energies of Messrs. S. G. B. Wollaston and J. F. Peasgood (the Executive Committee), become an annual affair.

The exhibition opened on March 19th, and will remain open for one month. As the Palace is only a pleasant half hour's railway ride from London, it is a popular place of resort (though not so popular as it ought to be), and the attendance at the exhibition has so far varied from 5,000 to 15,000 per day; although season ticket holders and other attractions will account for many of these. Still, there can be no doubt but that such shows do good to our art in many ways. They popularize it, and they enable one to conveniently compare the various forms of apparatus, to handle them, etc.

The pictures sent include 1,200 frames, besides 1,500 lantern slides. They

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are arranged in the various "courts" which branch laterally from the north nave; and are shown on fifty large screens, and in seventeen "alcoves"—the latter term being applied to beautifully draped recesses, each of which is occupied by the work of a single exhibitor. Not many medals have been awarded, but I note that Mr. H. W. Gridley, of New York, has again received an award for his beautiful views of Palmyra.

In the apparatus department the number and variety of hand cameras is really surprising, but I saw nothing that I liked better than Anthony's "Climax" Detective Camera, which was shown by Fallowfield. Anthony's bromide paper was also conspicuous on several stalls, and I hope to try it soon. The present popularity of slow or "tentative" development, which I have always advocated so strongly, has led to the introduction of numerous pendulum rockers to keep the trays in motion. Of new shutters the cry is "still they come." The Lyon Shutter was shown by Fallowfield, and when the manufacture is perfected I think it will take the lead. For those who want a cheap shutter, there is nothing to equal the "roller blind" form which is known as the "Kershaw." The shutter speed measurer or chronograph, invented by Mr. W. J. Wilson, of the Paget Prize Plate Company, is by far the best thing yet done in this line. A metal disc with a radial slit revolves at a given speed in front of a brightly illuminated ground glass dial graduated into six hundred divisions. By means of the shutter to be tested a photograph is taken of the dial when the metal plate is revolving, say, once per second. If the dry plate when developed shows an arc containing (say) ten divisions or graduations, then the speed of the shutter must have been the sixtieth part of a second ($600 \div 60 = 10$). It is surprising how the (so-called) rapid shutters mostly break down when they are rigidly tested. Very few will give an exposure as brief as the fiftieth part of a second. Probably the best (and the most expensive, for it costs $30 or more) is the "Thury & Amey" shutter, made at Geneva by the firm of that name. It is very easy, however, for a shutter to be too rapid for ordinary work.

There is a very fine exhibit of pictures made on Thomas' "Pall Mall" plates. The landscape plates made by this firm are so "thickly coated" as almost to defy halation; and they give with ease any amount of density. I have lately been trying dry plates the backs of which have been very finely ground (they were made specially for me by Mr. J. T. Sandell, the courteous manager of Thomas & Co.), and I find that, coupled with a coating of adequate thickness, this is a complete cure for halation. I advise all who have to take "interiors" with troublesome windows to try this plan. Another well illustrated advance to be seen at the palace is in the use of compressed gases in steel cylinders for the lantern, instead of the large rubber bags which have for the last thirty years been universally employed in this country. Messrs. Steward, of 406 Strand, have "perfected" the cylinder system by the introduction of a compact pressure gauge which shows when required the exact amount of gas remaining in the cylinder; and by the application of Beard's automatic regulators, one of which, screwed to each cylinder, permits the gas to escape with uniform and not excessive pressure.

These two "affairs"—the Conference and the Exhibition—taking place in the spring of the year, just when "young men's fancies lightly turn to thoughts of" photography, will undoubtedly give a fillip to trade. That the popularity and prosperity of such reunions may continue to increase is the sincere wish of

TALBOT ARCHER.

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LESSONS FROM MY ALBUM.

BY W. E. PARTRIDGE.

My first attempt at photography was made in the spring of 1879. Gelatine dry plates were just making a noise in the world. Time and business prevented me from trying to make my own plates, so I began with plates which were purchased. They were some kind of emulsion and cost $1.50 per dozen for 3¼ x 4½. They were slow, probably slower than any bath plates ever made. At that time there were no gelatine plates to be had. Some of the stock houses had gelatine emulsion for sale, but did not think it would pay to handle dry plates.

Later in the season gelatine dry plates were in the market. I did not attempt to make any plates for myself. Of the modern army of amateurs who buy their plates, I think I may claim to be the first recruit, the oldest of the dry plate amateurs who are not also plate makers.

A few months after I began, and had reached a point where I was at all certain of getting an image on the plate—not always an easy thing in those days—I was persuaded to buy a very large album in which to mount my prints. With a courage which commands my admiration at the present time, I began mounting in it samples of almost everything I printed. In later days I should not have had the gall to do such a thing, but as the habit had been begun I have kept it up to the present time. My album, or albums, now contain prints of nearly all practicable negatives which I have made, as well as a great many by professionals. In my collection I have some forty or fifty imperials of actors, authors, actresses, etc. These were all purchased prior to 1877; many of them were made in 1874 and 1875.

Of the prints which have been mounted in my larger collection there are a large number of various kinds by professionals. In style they are varied; nearly every process is represented—silver, platinum, "cyanide" or "blue," bromide, collodion, bichloride of mercury and silver are all represented. Many of my negatives have been sent to professionals for printing. Some prints I have made myself. There are nondescripts about which I know very little.

Ten years have written their story across many of the pages. Time has shown that a deeper history can be written in ten than in eight years, or less. I find in going over the pages there are very many important lessons to be learned. These lessons may be of service to others besides myself.

With a single exception all the silver prints of the earlier dates show signs of fading. This includes those that were purchased mounted and those that I mounted myself. As I did not attempt to make silver prints myself until about six years ago, my own work does not count. The exception is a landscape taken away down East. The print was made in 1866 or 1867, and put under glass—not a tight frame. The picture to-day is as clear and the lights as pure as when it was first mounted. It looks like a new picture now. Unfortunately I know nothing in regard to its production. For half of its life it has hung upon the wall.

In the silver prints there are several kinds of deterioration. That which shows itself first is the failure of the burnished albumen surface. This has taken place in all the prints. The unburnished surfaces are to some extent troubled in the same way. The fibres of the paper, compressed by the burnisher, finally swell and destroy the surface. They present a network of fine lines over which the

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albumen gloss appears like a varnish. The higher the burnish, the worse the result.

This fault destroys the bloom of the picture usually within a year. A few last twenty months, and here and there one keeps its surface for two years.

The mountant in my album has been "Daisy" paste, flour paste freshly made, and, within a year, fish glue as an experiment. A few prints have been glacèd by squegeeing on glass. These have been mounted by the edges. Some of these are now more than two years old and still retain a very good surface.

Of the perfectly permanent prints, first and foremost on account of number are those in "blue." I cannot detect the slightest alteration in any of them. The high lights are as pure and the shadows as intense as any I can produce to-day from the same negatives. Ten years have not developed visible changes in them.

Platinum prints rank nearly as high. Time, however, has not been as gentle with them. Here and there I find one in which the whites have become degraded. A portion of this appears to be due to the use of hydrochloric acid in the washing waters and wood pulp in the paper. I believe part of my prints washed in citric acid waters have not yellowed. But here I am confronted with a sample print by Willis & Clemens in which the whites are perfect after seven years. I think the firm always used the hydrochloric acid for clearing. Several prints by Mr. Needham are perfect, though they have been in my book for over five years. Of course the platinum image is beyond suspicion of fading.

The bromides have not as good a record as I could wish. There are many enlargements from negatives now lost or destroyed, and these prints are fading. All of them lasted eight years before showing any sign that they would be fugitive. One of them has already handed in its checks and passed away within two years. A yellowish brown stain begins at the edges, and gradually spreads over the whole surface, obliterating the image as it advances. One print, however, is thoroughly yellow, with the image intact. I hear the older men softly whisper "hypo." That is a good answer. There is no way of disproving it. It will apply as well to the silver as to the bromide prints. My private opinion of the hypo theory in such cases is that it is "Humbug"—spelled with a capital. It might have been a good answer in the early days and fitted most cases, but it has become a very ripe chestnut. I had a lot of fine silver prints, some of which I have mounted. A part of these turned yellow at once. When I asked the reason for this, the old answer came, "Hypo"! That, I thought, was fine, it was so appropriate, because after those prints had been finished by the photographer I had, in an endeavor to glacè them, washed them in two or three waters and soaked them twenty-four hours. The water had more to do with the yellow than the hypo.

I became so sick of this answer that three years ago I mounted some prints which will fade "with a whereas." They are already turning red in streaks and bleaching. I shall one of these days show them to an expert, and, after being told that hypo is the cause of the failure, shall proceed to explain that the paste used in mounting was preserved with bichloride of mercury. I think that will rather crush the hypo theory.

I have two very beautiful collodion prints. They were made in the camera on glass, developed and then transferred to paper. Neither the image nor the whites have changed in the least. The color is almost an engraving black.

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The film is on the surface and is not protected. It is wearing off slightly by contact with the opposite page.

A number of bichloride of mercury and nitrate of silver prints are worth study. The deep shadows are nearly black. The half tones are slightly warm, and the high lights almost as pure as those of a blue print. Two years of life have not yet developed any change. The method, which is a sort of chloride of silver printing, appears to be worthy of further trial. I found the process somewhat uncertain and was not able to manage it upon an albumen surface. My failures were probably due to a lack of skill in sensitizing and in the use of the silver bath.

In regard to the quality of the picture, the purest high lights and the softest gradations, and, altogether, the best prints, whether new or old, are those made on "blue paper." The total color scale is wider in them and they show greater brilliancy than any others. Nearly, if not fully, equal to these, are the platinum prints made by the professionals from very "plucky" negatives. But even the professional has hard work to beat the results given by the blue print. For small pictures a glossy surface is needed, to prevent the grain of the paper from hiding the details. This leads us to wonder why we cannot have blue prints on albumen paper.

The silver prints fresh from the burnisher, when compared with those made on blue paper, show a sad degradation of the high lights. Although, nominally, the highest light in the silver print is white, yet it is very rare to find one in which the white can be found. In this respect the untoned print is much more beautiful. It is true that the foxy-red color is not very pleasing at first, but the color scale is much longer than after toning. The whites are pure and the delicate gradations are all that can be desired. I have nearly a dozen of these untoned prints; they are fading, of course, but not badly. The beauty of their gradation makes one forgive their color. This, after all, is not so far removed from the sepia of the old masters.

The collection made during the last ten years teaches an art lesson that I shall not forget. In a word, it is to make more of the foreground. The amateur is usually inclined to make his pictures at a distance and forget the shrubs growing within ten feet of his instrument. With my early apparatus it was impossible to get a good foreground in focus and at the same time give a distance with any reasonable degree of satisfaction. With the better lenses which are now within the reach of almost every one, it is quite possible to get the foliage close by the instrument, as well as the more distant landscape. It is wonderful how far a good foreground will go toward redeeming almost any photographic composition from failure.

Parts of large pictures are often better than a print from the whole negative. At different times a friend has given me scraps cut from large prints, or prints from parts of negatives. Some of these are not more than an inch square. Several are almost microscopic, and such perfect compositions that we wonder how one could wish to include more by using a larger plate. This is a lesson on the value of long-focus lenses and a rebuke to that general desire for the Earth. The wish to "take it all in" spoils many a negative.

By all means, I advise, buy an album and mount good prints from every negative made. As years pass, new beauties will be found in them. Plates made to obtain an effect, and rejected because it escaped, may prove in after

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years to have a peculiar charm of another kind. Negatives that were thought worthless may in time develop beauties which were at first all unnoticed. A failure in some detail often disgusts one with a negative which will really give beautiful prints. It does not follow because a point has been missed that the picture has been ruined. The lapse of time often renders a negative valuable. A change in a scene, the removal of a landmark, associations and a thousand other accidents may combine to make the print a joy in other years.

Discoloration of silver prints is a sore point with me. Beyond the fact that they are not permanent, it is difficult to interpret their behavior. Nearly all of them have turned more or less yellow in the whites. My printing in the last ten years has been done by many different men. None of the prints are exempt from this fault. There are a few prints toned by myself which, though of the usual color obtained by amateurs, have not changed, and are to-day clear and bright. One dated 1882 is as good as when first mounted. Another, however, made at the same date or a year later, is discolored in spots and actually fading.

There is a general change in the color of the silver print image before it begins to fade and usually before the yellow begins to invade the whites. Two prints made by Carlo Ponti, of Florence, are now seven years old. The tone of one is a dark, rich purple, nearly black. This is as good as when first mounted. The skies are pure white. I think in one of them a yellow stain begins to show at one corner.

Apart from the yellowing by age, there is another that is making havoc with the prints. Along the edges a yellow line makes its appearance. This gradually grows wider, and as it spreads, not only discolors the paper, but to a considerable extent bleaches the image. This trouble is confined to the prints in the large album. Those mounted when purchased are quite free from this trouble.

I know of nothing in the history of the prints, or of their mounting, which explains these changes. Being all in the same album, there is no probability of differences in the mounting board which would account for them.

The tone, contrary to the general opinion, has had little influence upon durability. Unfortunately I have no examples of the blue-black silver print. Some of those having the most abominable foxy red tones have not changed perceptibly. One print made in 1884, and having nearly a bromide tone, is still in good condition.

The untoned prints, mounted a year ago, are losing a little of their foxy color. This is probably the first step toward complete fading, which all the books tell us is certain.

The few experiments I have made, as well as what I can learn of the treatment of some of these prints, lead me to think that too much washing is as dangerous as too little. Washing over night appears to be longer than is desirable.

I may be pardoned a few conclusions. Of the prints I have mounted, I have no hope for the permanence of any, save the "blues" and the platinums. I think it only a question of time when the others will disappear entirely, leaving only dirty yellow patches to remind me of the things of beauty which have been. The photographs which were mounted when purchased may last longer. Their beauty as pictures has already passed in most cases. Most of them remind one of pressed autumn leaves. Yellow prevails and masters everything.

Of blue prints transformed into the gallate of iron I have a few. Some are

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good, with fair high lights. They have too much purple in the black to be pleasing. Their permanence is beyond question, as far as can be shown by a five years' experience.

Some of these prints smut the opposite page, showing that they will ultimately suffer from actual wear.

We need a good printing process. It has not yet made its appearance. In small sizes it should have a glossy surface, while above 8 x 10 or 10 x 12 it should be matt. It ought to give as brilliant results as the blue process and be as simple. The tone should be a pure black in the deepest shadows. The engraving is the standard. The artists do not want the beastly photographic purple to represent landscapes. Those who do, can use silver.

While I hope we may get it, I confess that my faith is small.

A TALK BEFORE THE BOSTON CAMERA CLUB ON COLLODION EMULSION.

BY E. MILLIKEN.

The enthusiasm of the Camera Club in the matter of lantern slide making, and a desire that you may see and know for yourselves the ease with which collodion emulsion is prepared, are probably the principal reasons why your Secretary has invited me to give a talk on the subject.

I have seen, shown here, lantern slides made by the wet plate process, and also some made on gelatine dry plates, but none on collodion emulsion plates.

It cannot be such plates are unknown to you, but rather, I think, to the belief that to prepare them is a difficult as well as a delicate matter. Herein you are in error, for, as you will shortly see, the preparation of the emulsion is comparatively an easy task.

The principle to be followed in the preparation of the emulsion is to employ a considerable excess of soluble bromides. Those of you who are familiar with the formula for gelatine emulsion only must not think that the same rule holds good in collodion, for such is not the case. In the former it is generally held to be immaterial how much excess of bromide, within reason, is used; but in a collodion emulsion every grain must be taken into account in estimating the probable sensitiveness of the preparation. What in the case of gelatine would be a small excess, in collodion would be a very large one.

The formula which I have used is :

Cadmium bromide	30 grains.
Ammonium bromide	15 "
Alcohol	2 ounces.
Sulphuric ether	2½ "
Pyroxaline	20 grains.

Put the cadmium and ammonium bromide into a 6-ounce bottle, and add the alcohol and ether. A vigorous shaking for a few minutes will dissolve the greater part of the bromides. The pyroxaline should then be added to the bromized solution, which should be allowed to stand for a day or two, being shaken occasionally, when it is ready to be sensitized. To sensitize the above quantity, dissolve in a test tube, by heat, 50 grains of silver nitrate in half a dram of water, and add 2 drams of alcohol, previously heated in another test tube. The alcohol solution of silver is added, a little at a time, to the bromized collodion, with vigorous shaking, and the test tube finally rinsed with 2 drams of

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alcohol, which is added to the emulsion, making 5 ounces in all. Of course the sensitizing of the collodion should be done in the dark room, although it is not necessary to be as particular as to the light as with gelatine emulsion. You can allow yourself a very liberal quantity of either yellow or red light.

When the emulsion is first made it is rather thin and blue; but if set aside, protected from the light, of course, for about a week, it ages or ripens, and becomes creamy in appearance. To a certain extent age improves it, but it is not advisable to use it after it has been kept as long as three months. The emulsion having ripened, should be filtered through cotton wool, a plug of which should be loosely put into the neck of a glass funnel and moistened with alcohol before using.

The plates which it is proposed to use should be thoroughly cleaned, dipped into an albumen solution and set aside to drain and dry. The albumen solution is made by dissolving, by the aid of vigorous shaking, the white of one egg in three pints of water, and filtering through cotton as previously described.

After flowing the plate, allowing the excess of emulsion to run off, but not back into the emulsion, and after the film has set, wash in several changes of water, or under the tap, until the seeming greasiness disappears, when it should be flowed with the preservative, which may be strong tea or coffee or a solution of quinine made of:

Tincture of quinine	2 drams.
Water	5 ounces.

After allowing the plate to drain for a few minutes, dry at once, and preferably by heat. I dry in the oven of the cook-stove, being careful that it is only moderately hot.

The plate, having been exposed either to artificial light, for a contact plate, or in the reducing camera, is ready for development.

The exposure should be about four times as long as that given a very slow gelatine plate. You must bear in mind that collodion emulsion cannot stand the amount of alkali in development that gelatine can.

The solutions required for development are:

Pyro	3 grains,
Water	1 ounce;

and for an alkali any which you are accustomed to use and have on hand, either ammonia or potash.

In addition will be needed a solution of alcohol, two parts; water, one part. Place the exposed plate on a leveling stand; a small graduate or tumbler will do as well; flow over it the alcohol solution, allowing it to remain on the plate for about a minute, which softens the film; then pour it off, and wash with water until it will flow evenly over the surface. Having put into a graduate the quantity of pyro solution you propose using, add to each dram of it two drops of alkali and flow it over the plate. The image will develop up with little of density, being seen by reflected light to be of a bluish-pink color; by transmitted light scarcely at all. When the detail is well out pour back into the graduate the developer on the plate, and having added two drops more of alkali to each dram of pyro, again flow the plate, pouring the developer on and off until requisite density is obtained; then rinse with water and fix in comparatively weak hypo, say one to six.

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It takes fully as long to describe how to develop as it does to develop.

I have never heard of hydroquinone being used as a developer for collodion emulsion; but as it is composed of bromide of silver, could see no reason why, as it would develop gelatino-bromide plates, it would not also the collodion emulsion. I tried the following:

Hydroquinone	10 grains.
Soda sulphite	80 "
Potassic carbonate	60 "
Water	2 ounces.

Taking equal parts of it and water, the result was fully equal to that obtained by using pyro. It is necessary, however, in using hydro, to over-time rather than under-time, as forcing the development has a tendency to fog or veil the high lights.

An advantage which the collodion emulsion has over gelatine is that if from any cause the plate, after developing and fixing, is weak and flat, it can be intensified, like a wet plate, that is, you intensify only the dark portions, the lights remaining clear; to do this, flow the plate with a solution of one and a half grains of pyro to the ounce of water, to which has been added a few drops of a solution composed of:

Silver nitrate	30 grains.
Citric acid	20 "
Nitric acid	10 drops.
Water	1 ounce.

Be careful not to use this too freely or a bad color and coarse image will result.

If desirable the plate may be toned by using the spent gold bath which has been previously used for toning prints.

Apropos of the above, we have used the following gelatine emulsion with good success in lantern slide making, it being about one-quarter the rapidity of Carbutt B plates: Into a tumbler put of

Potassic bromide	56 grains.
Heinrich's gelatine	80 "
Water	3 ounces.

Heat in a water bath to 130 degrees, and when all is dissolved, add slowly, with constant stirring, 60 grains of silver nitrate, previously dissolved in one ounce of water; put aside to set. When thoroughly set, we generally wait until the following day; shred by pressing through what is called coarse railroad canvas; wash in four or five changes of water; drain, remelt, filter through fine flannel, and coat plates, allowing 1 dram of emulsion to each plate of lantern slide size.

[*Transactions of the Edinburgh Photographic Society.*]

SOLARIZATION.—FROM A THEORETICAL AND PRACTICAL STANDPOINT.

BY HUGH BREBNER.

As this is the first time that I have addressed the Edinburgh Photographic Society upon this subject, I had better begin by stating that it is fully a year and a half since I commenced the experiments whose principal results I propose to touch upon to-night.

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When a piece of sensitized, albumenized paper, exposed for a few minutes to sunlight, is torn in halves, and one of the pieces is turned face down, and both are again exposed for a period equal to the first, it will be found that while the piece exposed from the front and the back is lighter than the other by reflected light, by transmitted light it is considerably darker, although, through the light having had to penetrate the paper support, it may be considered that less has reached the film. This, among other things, tends to prove that light in reducing chloride of silver erects a barrier in its own path, as far as the rapidity of the formation of a visible image is concerned.

A gelatino-bromide dry plate behaves in the same way with regard to the visible discoloration of the film, though to a much less perceptible extent.

When fixed, without development, of course, the density is proportional, though not directly proportional to the duration of the exposure, the greatest alteration taking place in both cases at the outset. Still, the invariable rule obtains, that, under similar conditions, the longer the exposure the greater is the density.

The addition of a solvent of silver salt facilitates the discoloration, at least up to a certain point, after which the difference of graduation is so light that it is difficult to observe with sufficient accuracy. The discoloration is also promoted by alkaline solvents more than by those which are neutral. Acids added to either form of film greatly retard or prevent a visible change, according to their power of dissolving the haloid salt, or of oxidizing the metal produced.

(The foregoing notes are to be taken as general rules only, to which exception may be taken or be found. They are points of great theoretical interest, and though, personally, I am inclined to believe in an electrical action on the part of light, yet I would not put forward the foregoing save as a provisional classification of the great bulk of our observations of photographic phenomena.)

When a dry plate is first exposed and then "developed" so as to obtain pictures in the ordinary way, the preceding observations apparently hold good as far as the treatment of the film by solvents—alkaline, neutral, or acid—go. But over-exposure, solarization, or reversal, advance deeper problems for our solution.

Before summarizing the results I obtained by a somewhat extended series of experiments, let me attempt to define the composition of the developer, seeing that such a definition as I could give formed the basis or working hypothesis upon which my experiments were undertaken.

A developer is essentially a solution (or vapor), from which metal is deposited upon a light-produced nucleus. It is customary, however, to restrict the term "developer" to ingredients in it which throw down the metal. Nevertheless, I hold that the development of a daguerreotype is in principle the same as that of a calotype, wet plate, or stripping film, and differs from intensification with corrosive sublimate only in so far as the attracting nucleus is in the one case invisible, in the other visible, and the vehicle a vapor and an aqueous solution. Practically speaking, however, a developer consists of a solvent and a depositor, one or other being generally an accelerator—or an electro-positive body similar in its action to the more refrangible rays of light, those of metallic or basylous origin. Thus in ammonio-pyro development we have—

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Ammonia	= Solvent of Ag Br.
Pyro	= Depositor.
Ammonia	= Accelerator.

And in ferrous oxalate development—

Potassium oxalate	= Solvent of Ag Br.
Ferrous oxalate	= Depositor.
Ferrous oxalate	= Accelerator.

The fact that we can develop an image of the open mouth of an ammonia bottle—exposing and developing in the dark—sufficiently proves that the term "accelerator" is by no means superfluous; and to me the experiment affords one more proof, that there is a closer affinity between the action of light and that of electrical disturbance than is generally acknowledged.

By means of using apertures for objects in camera work, and for *clichés* in contact printing, I was enabled greatly to lessen my own trouble and simplify observation; while, by causing the exposures to overlap each other, I could easily get a hundred different periods represented on the same plate for twenty-five exposures actually made. I had six methods of working. Two in the camera—exposing on a circle of ground-glass illuminated by diffused daylight, and on a gas flame. Two by contact in the printing frame—by direct sunlight, and by gaslight. And two with naked plates—exposed to sunlight and to gaslight. While, for the most part, I developed 4, 12, 24, or 100 exposures in the same developer, simultaneously and for exactly the same length of time, I found it impossible to work with anything like precision, the inconstancy of the developer and the absence of an automatic exposing apparatus being my chief difficulties. I had, therefore, to multiply my results, take averages, and, in the case of the more protracted exposures, resort to inspection by ordinate and co-ordinate.

From several thousand exposures I came to the following conclusions:

A. That when the film of bromide of silver is inconsiderable in thickness, the action of a strong light is instantaneous, complete, and irreversible.

B. That with the seven brands of commercial plates upon which I further experimented, the facility of reversal, estimated by the duration of the exposure required to produce a given result, in conjunction with a constant developer employed for a fixed period, was greatest with the plates thinnest in silver, or with those with which it was difficult to get sufficient density. Edwards' most expensive plates and those of our own make required the longest exposure.

C. Taking the ordinary negative image obtained in the camera, and the ordinary transparency obtained by contact with a negative, as the normal, the phases of reversal and re-reversal stand thus: 1, normal; 2, neutral; 3, reversal; 4, second neutral; 5, second normal; 6, third neutral, etc.

D. If the normal be produced with an exposure, x, and the first neutral (invisible) with an exposure, $n\,x$, then the first reversal will be obtained with an exposure, n^2x, the second neutral with an exposure, n^3x, the second normal with an exposure, n^4x, and presumably so on; *e.g.*,

Normal	5 seconds.
Neutral	90 "
Reversal	1,620 "
Second neutral	29,160 "
Second normal	524,880 "

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E. Conjointly with light the reversing agent was found in the accelerator. An exposure calculated to give perfect neutrality, with a developer of a given strength used for so long, could be kept a fair normal by reducing the accelerator and adding restrainer, or it might be turned into a decent reversal either by prolonging the development or by increasing the proportion of accelerator. Restrainers restrained reversals in exactly the same way and extent as they restrained the normal image. The depositor also apparently played its customary part.

There is one point to which I would specially attract the notice of all theorists. While, practically speaking, we can easily see that the sum of the effect is due to the combination of "solarization" and "halation" as we term them, the real question which underlies the whole matter is this—Why, with a constant plate, light developer, and period of immersion, do different exposures give opposite conditions of transparency and opacity in the portions upon which the light was known to have impinged for the greatest length of time? The portions which exhibit halation, the portions which got least light, these also exhibit the phenomenon of solarization. Hence, to attribute the latter to the former, is equivalent that the secondary effect is the cause of the primary impulse.

I am attempting at the present time to reason out whether or no the interference and polarization of the light—which interference and polarization must of necessity exist to some extent—can have anything to say towards a solution of the mystery. The subject is a very difficult subject indeed, and positively bristles with subtle and undecided optical problems. With my own conviction that electrical currents are greatly concerned in the manifestations you are already familiar.

There are many other points connected with this subject which I should greatly like to touch upon, but I have already perhaps rambled too far. Let me then conclude by giving you the exact conditions under which I obtained negatives from negatives.

I took what I consider a perfect though possibly a rather thin negative—a stronger one would have given better results, and would have been more easy to manage—and I laid it in an ordinary printing frame in the usual way. In the dark-room I placed an "Ilford ordinary" plate against it, so that the films were in contact, and throwing aside the "backing" lest the pressure should break the negative, I shut the frame.

Having found that twenty-seven minutes' exposure of a sharp aperture cut in a piece of wood gave me the best reversal, I decided that at least twice this exposure would be needed to allow the light to just penetrate the most opaque portions of my negative, under the conditions of illumination under which I had been previously experimenting, namely, at about 6 inches from the gas-flame from a No. 3 "Bray" burner. An exposure of fifty-four minutes having proved too long, the reversal obtained being too clear and feeble, I tried forty-five minutes, and with such success that I have stuck to that exposure—for the same quality of negative, of course—ever since.

My developer for this was:

Pyrogallol	4 grains.
Ammonia	1 minim.
Ammonium bromide	0.05 grain.
Water	1 ounce.

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And my object in employing such a weak developer was to protract the time sufficiently to allow me full time to see what I was doing, as there is considerable difficulty in judging when the high lights are dense enough, on account of the general and unavoidable fog. I held a second developer, with twice as much ammonia and bromide, in reserve, but upon this occasion I did not use it, though I have done so since, and got equally good results in less time.

On arresting the development, a more hopelessly fogged-looking production pretending to intend to pass for a negative I had never seen. As experience had taught me, however, first impressions are occasionally not to be relied upon, so I immersed my work of art in the hypo without many misgivings. On taking it out again, I was at first, by the light of the dark room lantern, a little disappointed, but a stronger light minimized the appearance of fog and "maximumized" the density of the high lights.

"The proof o' the puddin' 's the preein o't!" When prints from the original negative and the "reversal" were submitted to an expert, all he said was that he couldn't see any difference between them; that if anything he liked number two best, because the modeling marks did not show so much; but that, if I had not assured him to the contrary, he would have taken them to be prints from the same negative, the plate-imperfections being the same in both. I did not tell him that while one of the prints took minutes the other took hours—not an equal number of each, however. Since that time I have made a good many negatives by the same process, but, having been taken for pastime, I gave them away readily as curiosities. Several shorter exposures were developed with developers of the normal strength, both pyro and iron, and at this distance of time I cannot tell whether they compare favorably with the slowly developed negatives or not; I know they were more uncertain.

The light, the distance, and the three-quarters of an hour, however, may be accepted, I venture to say, as standards of reference by any practical hand desirous of repeating this experiment.

[*From the British Journal of Photography.*]

NOTES ON COPYING.

BY EDWARD DUNMORE.

PERHAPS of all photographic operations copying is the most universal. There are few, if any, who, practicing photography, have not at some time or other to make a copy. The intention of the writer is to review the different kinds of copying and the means taken to procure satisfactory results.

Copying may be defined as the reproduction of anything that exists on one plane (in contradistinction to photographing, which includes the reproduction of every visible thing on one plane or many) on a plane surface; a distinction, perhaps, in some cases with very little difference, but still sufficient to explain what the term "copying" in this article is intended to convey.

The methods required are very varied, each particular class of subject necessitating its own particular treatment to get the best results. The different subjects may be classed under the following heads: Black and white in lines or dots, as engravings, etc.; black and white with half tone, as Indian ink and pencil drawings; colored subjects, as water-color drawings and oil paintings, old manuscripts, daguerreotypes, and glass positives. To begin with copying a line

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engraving; this is perhaps one of the most easy subjects to which photography is applied, and yet one that seems in many instances to be so difficult with gelatine plates that the old wet collodion process is still used in preference. The first thing to do is to set up the engraving to be copied exactly parallel with the focusing screen, and the lens exactly central with regard to the subject. If the camera is not properly arranged the lines in the copy will be out of drawing. The focusing must be as sharp as possible, and a small stop used. This part being satisfactorily arranged, the illumination must be next attended to. The difficulty of doing this increases with the size of the sheet to be copied. It is absolutely necessary that the whole surface should be equally illuminated, and the way of doing it is regulated in a great measure by the disposition of the windows of the work-room. If the source of light is from one side or top only, white reflectors will be necessary; in the usual glass room a sheet of white paper, placed on an angle below the engraving to be copied, will generally suffice. A wide-angle lens should not be used; a rapid rectilinear, symmetrical, or triplet lens is the best, and not worked to the full extent of its covering powers. If a short-focus lens is used and the reproduction is required of the size of the original, the camera has to be placed so near the subject that it will probably interfere with the evenness of the lighting by cutting off most of the front light, or the perspective will be distorted. The exposure is the next thing; it must be just so long that the black lines are free from any reduction in development. The longer it is short of this the better, bearing in mind a rapid development on a well-exposed plate gives a much blacker image than if the development is prolonged. The rule in wet collodion was short exposure, and weak, well restrained developer; with gelatine the developer must be well restrained, but not particularly weak, and the process must be stopped before any reduction takes place on the lines; any veil on the shadows is a fatal objection, especially if the negative is required for photo-lithography or mechanical printing; the plates used must therefore be such as will work absolutely free from fog of any kind. All diffused and reflected light must be carefully guarded against; none whatever, except that forming the image, having access to the plate. The camera should be dead black inside, with a diaphragm, if the lens used covers much more than the size of the plate—in fact, every precaution should be taken to insure brilliancy of the image. It is an advantage to fix the plate in a hypo bath to which iron sulphate has been added, wash well, and dry. If on examination after drying the lines look clouded, they may be cleared by immersion in a weak bath of ferricyanide of potassium and hypo. Care must be exercised in doing this not to overdo it. If the plate is left in too long, or the bath is too strong, the image will be reduced unequally, and the negative spoiled. If the exposure has been so short that a very thin image is developed, there is a good deal of extra trouble in getting a sufficient density by any method of intensification. The longer the exposure the more easy it is in this respect, and the after treatment with ferricyanide permits a longer exposure than could otherwise be given. Wash well, and proceed to intensify with mercuric chloride, followed by sodium sulphite; this process can be repeated, washing well between each application, until the necessary density has been gained. In all cases the application of an iron salt to the film facilitates intensification. Ferrous-oxalate development would probably suit this class of work, but my experience has been with alkaline pyro, which I have found to answer every purpose. There should be no difficulty in getting an absolutely

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black and white negative. In case of the ink or the lines being glossy, extra precautions must be taken to avoid reflected light from them, by cutting off all direct front light, which is best done by a black cloth screen with a hole in it, through which the lens can be worked. Black and white subjects with half tones require quite a different class of negative, much less dense.

The preliminary adjustments are the same in all cases of copying, the difference being in the exposure and development. A somewhat longer exposure, and the development carried sufficiently far to give sufficient density without any after intensification, is best—absolutely clear glass on the shadows not being imperative. If we have to copy an ancient manuscript, yellow with age, stained and unequal in tint, as most of them are, the treatment depends on whether it is desirable to ignore the marks of time and bring it out in black and white, or if it is better to represent the discoloration. In the latter case we proceed as if copying a black and white subject with half tones, using an orthochromatic plate, by which means the yellow and brown are much reduced in force, and give a fairer representation of the original. Extra density may be obtained in the usual way with mercury and sulphite, providing the first development fails to give sufficient. A good deal depends upon the amount of discoloration; at any rate perfect opacity is not required. There is no doubt in dealing with colors the orthochromatic plate has great advantage over ordinary ones, whether used with a screen or without. In copying pencil drawings, a short exposure and development with an extra quantity of pyro is indicated as soon as the slightest veil comes over the darkest pencil lines; stop the development, fix, and get sufficient density by after intensification; it is not requisite to get perfectly opaque lights and clear shadows, although they should be fairly so, as this would do away with the characters of the pencil and give the appearance of pen-and-ink drawing. The print should be made on a mat surface paper, which is preferable for all work of this class; if albumenized paper is used, the toning should be continued till all warm color is gone. Platinum and bromide papers lend themselves excellently well to this purpose. The water-color drawings—in fact, all subjects depending much on their color for effect—are best rendered by orthochromatic plates, there is no shadow of doubt. Water-color and oil paintings require much the same method of treatment in taking the negative, but oil paintings require special care to avoid reflections. This is best managed by screening off all direct front light, which necessitates somewhat longer exposure; but the advantages are manifold, and a little longer time in these dry-plate days is not worth consideration. Water-colors will not bear any rubbing of the surface, but all dust should be removed by a broad camel-hair duster. Fix them flat against a board, with drawing pins, or any other contrivance that will effect the same purpose, right way up; let the light fall on them from the same direction as that in which they were painted; this also applies to oil pictures, for sometimes the color is laid on so thickly, the artist depending for some of the effect on shadows cast by the impasted color, that if the light is admitted from the contrary direction it will prejudicially influence the effect.

Where there is sufficient space a picture can be most easily copied in the actual studio in which it was painted. The arrangements for light in the painter's studio are generally such as to show the picture to the best advantage and to avoid reflections. Formerly this was out of the question; but in our modern style of working with dry plates this difficulty is overcome, and renders a picture

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copied on the spot, so to say, more satisfactory than one done in any other place, for on a fairly bright day the exposure is not very much longer than that required in an ordinary glass room with the light screened off. There are no ugly patches of reflected light showing up the texture of the canvas and obliterating the painting, and even the sunk-in parts are not very pronounced. Many adopt as a preliminary to photographing the plan of sponging over the surface of the picture with glycerine and water or beer, leaving it moist while copying; either plan tends to equalize the surface and get rid of inequalities that would show as lighter or darker patches on the negative. It goes without saying that whatever is used must be removed with a sponge and clean water after the photographing is completed. Sometimes the colors are not quite dry when the picture has to be copied; this being the case, any application to the surface must of course be foregone, or the probability is the picture would be seriously damaged. In setting up the picture to copy, it is sometimes an advantage to tip it slightly forward, the camera being tilted to the same angle. As the wedges at the corners are sometimes loosened in carriage, they should be tightened up so that the canvas presents as even a surface as possible. The exposure for an oil painting is generally a little longer than for a water-color of a similar subject, the oils and varnishes used reducing the actinism. The exposure is almost entirely dependent on the intensity of the color acquired by the vehicles used with the prints rather than the colors themselves. Some very old paintings have so browned by age that the lights have about the same photographic effect as the shadows, thus precluding any chance of a satisfactory result. Unless the varnish is removed, an ordinary modern painting will generally be sufficiently exposed in five minutes, if reduced to a fourth of its size, and the stop being 64 U. S., on a plate of average rapidity; but of course so much depends on the light and other varying conditions that no definite time can be stated; but whatever exposure is given, let it be long enough: an under-exposed copy of a painting is but a caricature at best, and never is likely to give satisfaction. The developer should not be one calculated to give strong contrasts. When the image is thoroughly well out, wash and fix, and if deficient in intensity, intensify afterwards; better results will thus be secured than by prolonging the development, which is apt to destroy detail in the lights.

Glass positives are often required to be copied. In the first place, ascertain on which side of the glass the image is, for sometimes they are blacked over on the collodion side, and sometimes on the glass. If the black varnish is on the image itself, the first thing is to see that it is perfect; if not, make it so. Providing the glass side is black varnished it may be scraped off, and the face of the picture pressed against black velvet, so that the resulting copy may not be reversed. If the glass is fairly clean, the image shows as well on one side as the other, but providing bubbles and striæ interfere, the surface must perforce be copied; a reversing mirror or a prism will put it in the right position. No particular difficulty is attached to this work, or precaution required; avoid reflections and develop with any ordinary good developer. To copy a picture on albumenized paper is rather more difficult, there is such a tendency to granulations and coarseness in the copy unless some scheme is devised to avoid them. An unmounted print may be put into optical contact with glass, which will do much to remedy the evil. Place the print for a few minutes in a pan of clean water; when equally moistened lay it on a clear piece of glass, avoiding air-

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bubbles; put a few folds of damp white paper at the back, on which lay another piece of glass. The print, thus sandwiched, will remain a long time in a suitable condition for copying, but if merely wetted and laid on glass it soon begins to dry irregularly, when a smooth copy is out of the question. Equally illuminate it, and there will be little difficulty in making a good reproduction. If the photograph to be copied be mounted, make it as flat and smooth as possible, and use strong light and do not over-expose. The granulations seem to be owing to particles in the paper, which reflect light irregularly, rather than roughness of surface, and which ought, with front lighting, to entirely vanish. We know from experience they do not, so the fault cannot be from this cause. The developer needs no particular notice; any good kind will answer.

Daguerreotypes require considerable exercise of patience and most careful handling, as they possess qualities of their own that are calculated to give the copyist considerable trouble. They are on thin metal, whose silvered surface reflects light like a mirror—is a mirror, in fact, and sometimes not a flat one—and the difficulty is to see the image without reflections and at right angles to it. Perhaps as good a plan as any is to take a small box—say a cigar box—remove one end, and at the opposite cut away about an inch of the lid, and line the box with black velvet. The daguerreotype is fixed flat against the remaining end of the box with drawing pins, and is illuminated entirely from the slit in the lid above. Place it directly opposite the camera, covering the lens mount and any bright surface with black cloth or velvet, and proceed to copy in the usual way. It will be noticed that the buff marks or scratches in polishing are more visible in one direction than another. The daguerreotype should be placed so that the light shines along and not across them; they look very unimportant on the metal, but in the copy they come out strongly, so special care must be taken to get rid of them as much as possible by judicious lighting; develop as for a copy of a glass positive.

On the border line between copying and photographing is the reproduction of brasses, medals, bas-reliefs, and casts. Anything in low relief should be copied in a strong side light, the subject being placed upright, the effect being entirely dependent on strong cast shadows; while marble and plaster casts require a developer well restrained, and great care taken not to over-expose. Bronzes, the same kind of lighting, but a less restrained developer. Brasses should be dulled by dabbing them over with putty to destroy reflections, and will offer no particular difficulty. In all copying the primary condition of success is the accurate adjustment of the camera, and the next the avoidance of reflections; these being carefully managed the rest of the process is comparatively easy.

ENLARGING ON PERMANENT BROMIDE PAPER.

BY G. D. MILBURN.

[Read before the Society of Amateur Photographers of New York.]

THE process of making bromide enlargements from small negatives is very simple. To the professional photographer it is a source of profit, and to the amateur a great pleasure; from a very small negative you can produce as fine a large picture as the finest engraving, and it is now well known that when a bromide print is properly made it is permanent in the full sense of the word. An easy way to construct a bromide enlarging apparatus, out of apparatus on hand, is to take your front focus view camera; place your negative in a proper

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size plate-holder kit, and adjust the negative and kit (upside down) inside of the ground glass camera—that is, negative and film of negative next the lens. Place the camera on a small table, and move the table and back of camera against the window in an ordinary small room. (See Fig. 1.) Shut out all the white light in the room, except that which enters through the ground glass of camera. A magic lantern, with oil-burner, can be used instead of day-light apparatus described above. Extra quick bromide paper can be had for that purpose. Use

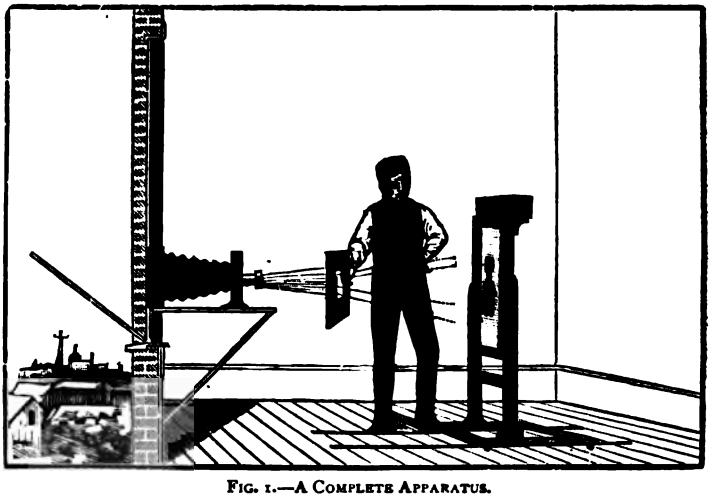


FIG. 1.—A COMPLETE APPARATUS.

most any good lens that is capable of covering the size plate you intend to enlarge from. Then you want an upright easel to suspend your bromide paper on, which is easily constructed out of two uprights, a flat board and a box of suitable size to serve as a base. The face of the easel should be covered with white paper.

Place your easel squarely in front of the camera. (See Figs. 1 and 2.) The size of the enlargement will depend on the focus of the lens and the distance

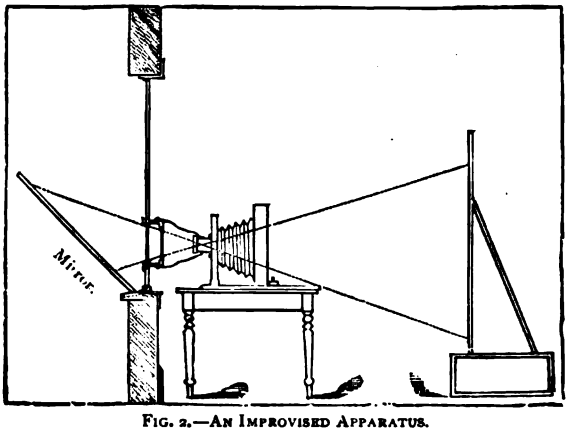


FIG. 2.—AN IMPROVISED APPARATUS.

that the easel is set from the negative. Move the easel back and forward until you have the required size. Then proceed to focus the enlarged image sharp. Now put the cap on the lens. At this stage of the operation it is necessary to have a ruby lamp in the room.

Another method of improvising an apparatus is to construct a shutter for the window, and cut a hole in the shutter two sizes larger than the largest negative to be enlarged from. Fit into the opening a frame about two or three inches

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deep, glazed on the outside with a sheet of ground glass. On the inside edges of the frame, top and bottom, arrange grooves in which to slide the negative. Now, on a table or shelf adjusted in front of the negative box, place an ordinary camera, having the ground glass removed. Point the lens toward the negative, and connect the lens and negative box by means of a bag of opaque cloth, open at both ends, and provide with elastic band to close it tight around the lens and negative box. This will prevent any light coming into the dark room. (See Figs. 2 and 3.) If there are other windows in the room, they can be darkened with curtains. In case a portrait lens is used, it should be put in position so that the back lens will be next the negative instead of as shown in Cut 2; the easel to hold the sensitive paper is described above.

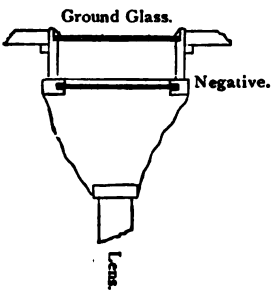


FIG. 3.—A PLAN VIEW.

The best bromide paper to use is of The Eastman Dry Plate and Film Company's manufacture. I find that this is the most reliable, as well as the most permanent bromide paper on the market. Take a sheet of the bromide paper, pin it on the easel, uncap the lens and give it the proper exposure, which will vary from a few seconds to several minutes, according to the strength of the negative and light. If you are uncertain about the necessary time of exposure, pin a small piece of bromide paper on the easel to cover the most important part of the picture, expose and develop.

This trial exposure ought to show you just how long to expose the full sheet of bromide paper, and will prevent waste. The best exposure is not less than twenty or thirty seconds. The lens can be stopped down to decrease the light if necessary. By giving the proper time of exposure, you can make a strong print from a comparatively weak negative, and vice versa. In fact, we have more latitude with the bromide process than any other photographic process known.

To make a vignette picture, the operator, standing at the left and half facing easel, should screen the lens with a piece of straw board about 16 x 20 inches. A hole of the proper shape for the vignette cut in the center. (See Fig. 1.) Having uncapped the lens, the vignetter should be moved back and forth from the lens to the easel. Continue this movement through the entire exposure. Additional time can be given on any part of the image that may need it, by cutting a smaller hole in the same size straw board and proceeding about the same as when vignetting. On landscapes extra time may be given on the sky by shading the balance of image with a piece of straw board of the proper shape; the most beautiful sky effects can be produced in this way.

My formula for developer is the same as that published by the Eastman Company:

No. 1.

Oxalate of potash	1 pound.
Acetic acid	3 drams.
Water, hot	48 ounces.

No. 2.

Protosulphate of iron	1 pound.
Water, hot	32 ounces.

No. 3.

Bromide potassium	1 ounce.
Water	1 quart.

To develop, take of No. 1, six ounces; of No. 2, 1 ounce; and of No. 3, half a dram. Care should be used in measuring No. 3, as an excess of bromide will produce too great a contrast, and too little will have a tendency to flatness. If you prefer to have your picture come up slow, this developer can be diluted with one-third the amount of pure water. In a suitable tray, soak the exposed print in clean water until limp. Then pour off the water and flow with the developer. The image should develop up strong, clear and brilliant. When the

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shadows are sufficiently black, pour off the developer, and flow the print with the clearing solution, which consists of acetic acid, one dram; water, 32 ounces. Use a sufficient quantity to flow over the print. Allow it to act for one minute. Then pour it off and apply a fresh portion. Repeat the operation a third time. Then rinse in pure water and immerse for about ten minutes in the fixing bath. Hypo-sulphite of soda, 3 ounces; water, 16 ounces. After fixing, wash thoroughly for about two hours, and hang your print up to dry. A good method to force an obstinate spot, on the print, when developing, is to dip the fingers into the developer and slightly rub the obstinate part. Care should be used not to overdo it, and to have no other chemicals on the fingers, as it would leave a stain.

Beautiful results on bromide paper are obtainable with the hydroquinone developer.

To mount, wet the print, brush over the back with a thin starch paste. Lay the print on the mount and rub down with a soft damp sponge. Some operators would like to see the print retain the gloss, as when in the water this can be done by squeezing the print face down on a polished piece of hard rubber. When dry the print will peel off with a fine glossy surface.

A higher polished surface can be attained by enameling with the plain collodion process on a plate glass.

PRINTS IN FIVE MINUTES FROM EXPOSURE OF NEGATIVE.

REPLY TO U. I. E., BULLETIN MARCH 23D.

IN your issue of March 23d you have a rather remarkable question in regard to getting a positive in five minutes from the time an exposure is made; the positive to be on a flexible material. Having had some experience in getting negatives quickly, perhaps I may be able to help U. I. E. with some suggestions. First take a negative on glass. But it is to be understood that a quick lens must be used and the light strong enough to obtain a full exposure. Develop this with a hydroquinone developer. I should prefer to use that put up by your publishers. With this I have just had a little experience under Mr. Newton's instruction. In a minute and a half or two minutes the negative should be ready for the hypo. If a quick fixing plate is selected it can be ready for washing in another minute. Here the real difficulty comes in, washing sufficiently to prevent the hypo in the film from injuring the positive. As an experiment I should try to print without fixing, using for the "flexible substance" a bromide paper. The thin, smooth paper made by Anthony & Co. will answer very well for this purpose. Again use hydroquinone. It will be sharp work to get the positive developed in the remaining two minutes, but it can be done. The positive will be finished so far as the appearance goes within the time named. It must of course be washed and dried. The question might be taken to mean a positive ready for inspection, and in such a condition that it might be shown. In this sense my answer would give a fair solution to the problem.

If the print must be finished and ready to take away, there must either be a few minutes added to the time or another printing process must be employed. More details in regard to what the finished picture must be, are needed. If for the finish of a race and positives are wanted which may be handed about even though somewhat damp and not perfectly washed, the process I have outlined would answer very well; as proofs of a portrait they would also do very well.

A finished platinum print is possible within three and a half or four minutes in a bright day with a good negative. The printing in that case would have to be in a camera, as the wet negative would prevent contact printing with platinum.

There is a great difference in plates in respect to the time needed for fixing. The same is true in developing. Some of the transparency plates made by Mr. Roche for Anthony & Co. would develop almost as soon as the developer touched them. They would fix in thirty seconds or less. The new hydroquinone developer works with great rapidity, and gives beautiful negatives, which print with remarkable speed, the deep shades being practically clear glass.

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If a print upon a film would answer, one might be obtained by putting the film next the negative and thus preventing contact of the hypo with the sensitive gelatine. Quick washing and alcohol drying might enable the operator to get his positive within six or eight minutes and in a reasonably safe condition.

It would be interesting to hear from some of our older men in regard to the best method of getting a positive from an instantaneous negative in the least possible time. I have on several occasions had similar work to accomplish, and if any one can throw light on the subject, they will be conferring a benefit upon me, as well as upon the correspondent who asked the question.

In my own work the permanence of the print made in haste was of little importance. Others could be made later on which would take the place of those made in haste.

W. E. PARTRIDGE.

FLASH-LIGHT PHOTOGRAPHY.

To the Editor of Anthony's BULLETIN:

I receive a great many letters of inquiry regarding the best method of using the Reeves magnesium lamp, causes of failure, etc., and thought (if you can grant the space) it might be of interest to many of your readers to answer them through your widely read journal. First, in regard to interiors, a prominent inquiry is, "Where is the best position to place the lamp?" This, of course, must be regulated somewhat by the size of the room; but if a wide angle lens is used (and, of course, no other is so suitable), then the best position is on top of the camera, care being taken to have it stand firmly, else the jar, when the bulb is pressed, may move the camera. If lamp is not placed on top of camera it should be as near to right or left as possible; this renders the shadows less prominent. If lamp is forward of camera, the lens must be screened. I use a reflector of white linen held in place by sticks of cane placed upright in a half circle on a board. The cloth is varnished with silicate of soda to render it fire-proof. A large sheet of white cardboard answers almost as well. The lamp should be placed high up—six feet from floor is not too high. The readiest means of focusing is on the flame of an oil lamp. A prominent fallacy is that the lights in a room must be turned down or extinguished if in the field of view; this is not necessary unless the slide is drawn and lens open for a long time. Use as much light as possible—the flash then will not be so noticeable as in a darkened room; the burning lights also add greatly to the appearance of photo; they should be placed, if possible, so that the shadow cast by the magnesium lamp should appear to fall from lights in room. One cause of failure is, the bulbs are not pressed hard enough; it requires considerable force to expel the air suddenly; a motion like clapping the hands is a good plan—this adds the force of a blow to the pressure. Another cause of failure is damp powder; it is seldom thoroughly dry when received from the dealers, and will clog and form into balls. Put it in a tin can and bake it with a gentle heat on a stove or register, stirring occasionally; it will then become very light and powdery and is much more effective. (Readers will understand that I am writing of pure metallic magnesium.) Some of the first lamps made had an insufficient quantity of wicking in front of pipe bowl. It is a good plan to cover the whole of bottom of small pan with wicking; this, with the fire-proof backing we now supply for upper pan, gives sufficient flame to thoroughly consume every grain of powder. Through a mistake advertisements have stated the amount to be twelve grains; when bowl is level full the charge is about double that; it varies somewhat according to the purity of the metal. I receive frequent inquiries for a larger lamp; could make them, of course, much larger, using a bellows instead of bulb to fire the powder; but they do not answer so well if larger. If the flame is higher, the flash is *prolonged*, showing a movement in sitters. It is much better to use two lamps and fire them together; this doubles the power of the light, gives a much broader flame without lengthening the time of exposure. To fire two lamps take a bulb in each hand and clap them together.

I sent you an 8 x 10 print a few days ago, made with two lamps; it is of

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group in very large parlor. By actual measurement it was 35 feet from lamps to end of room; as you will see, it is well lighted from end to end. I don't think the sharpness and detail would be exceeded if it was a time exposure by daylight. The lens used was a No. 3 wide-angle aristoscope with next to largest stop; there are few lenses would give such sharpness with so large an opening. I have written nothing concerning portrait work with the lamp, perhaps in some future number you can spare me space to do so; but it is in photographing interiors that the magnesium lamp has its greatest value, as they can rarely be got by daylight, at least where sitters are included.

Respectfully yours, W. REEVES.

NORWICH, CONN., March, 1889.

THE PHILADELPHIA EXHIBITION.

(*Continued.*)

SAMUEL STORROW, of the Boston Club, had but one picture, but it was excellent; a view of a young chemist studying with anxious eyes some substance in a test tube. The title, "A New Silver Compound," was singularly appropriate, and the whole study was very artistic, the lighting of the face from the side window being particularly good.

Richard H. Lawrence, of the New York Society, had a number of fine views of French scenes enlarged from 4 x 5 negatives upon bromide paper. The work was finely done.

H. Harrison Suplee, of Philadelphia, exhibited a large number of pictures, many of them gems of artistic composition. It is impossible for us to note all the good things in this collection, but we were especially pleased with "The Swing;" "Light of the Harem," a flash-light study; "Daphne," another flash-light picture; "The Rest by the Way," a very pretty scene, and the "Reward of Merit," a dog jumping for some morsel in a lady's hand.

Wilfred A. French, of Boston, had an excellent study in the picture "Drink, Pretty Creature, Drink," a lady drinking at a roadside spring. He also had two charming views in New Hampshire, "A Peep through the Willows, Thornton Hollow," and "Artists' Retreat, Waterville."

Horace C. Dunham showed a frame with three pictures of roses, beautifully done, and possessing some of the finest gradations of light and shade we have ever seen in flower photography.

John C. Lee, of the Boston Club, had two studies that were very good, "The Young Chemist" and "Loafing." Both pictures were well thought out.

Lieutenant H. A. Reed, of Fort Wadsworth, N. Y., sent an excellent exhibit of his work in "photography as applied to surveying." We fear that his work will be some time before it is appreciated. Our German cousins are far ahead of Americans in this particular branch of applied photography. But to Lieutenant Reed will fall the honor of having first called attention to its utility in the United States, and we hope that he will ultimately be rewarded in seeing the growth of interest in this direction.

G. B. Wood, the artist, of Philadelphia, as usual, had an excellent display of artistic photographic studies. Every picture had a story, and it was well told.

Henry R. Taylor, of Columbia College, New York, had an excellent exhibit of views at Newport and Niagara Falls, thoroughly well done and attractive.

Miss Margaret L. Corlies, of Philadelphia, exhibited a number of studies that were very artistic. "Wild Roses," a gentleman gathering the flowers, was

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excellent. "Result of a Morning Sail," a study of fish, and "Result of an Autumn Walk," an overturned basket of chestnuts, were both very good indeed. "The Studio" also was a fine piece of interior work.

Robert S. Redfield, of Philadelphia, had a number of very pretty views, with truly artistic feeling in the selection of point of observation. Many of them had very fine cloud effects, a point often neglected.

E. B. Harden, of Philadelphia, showed some particularly fine flash-light views in the Kohinoor Colliery, a most difficult subject.

(*To be continued.*)

OBITUARY.

DAVID COOPER.

Mr. DAVID COOPER, whose decease we noted in the last issue of the BULLETIN, was born at Falmouth, Jamaica, W. I., in the year 1855, and was educated in the academy of that town. During his early boyhood and manhood he was engaged in sugar plantations in the West Indies, which occupied his time until the year 1873, when, wishing to change his mode of life, he entered into mercantile pursuits. In the year 1876 he came to the United States, and was for some time interested in dry plate manufacturing with Cramer & Norden. In April, 1884, he entered the service of our publishers, and, with the exception of a short period spent with the Eastman Company, remained with them until his departure in search of health last October.

Mr. Cooper was an uncommonly sociable man, free and generous in imparting information to others, and was loved by all who knew him. He had a keen eye for artistic effects, which was natural and not acquired. As is well known, he was the inventor of Cooper's Enlarging Lantern, which is now largely used by workers in bromide paper. Cooper's developer with sal soda will always be remembered as one of his practical efforts, and his manipulation of bromide paper in the production of enlargements may be equaled, but has never been excelled by other workers.

From the force of circumstances he was compelled to leave his family behind him when he returned to his native land in search of health; but we are glad to know that kind friends ministered to him during his last hours, and he passed away at 10 o'clock on the morning of April 5th last.

Those who knew him best admired him most; and there is no one who ever met him but will feel that the world has lost a good worker and photography an earnest devotee.

OUR ILLUSTRATION.

THE frontispiece of this issue of the BULLETIN gives a view of the yacht "Seneca," owned by Mr. Tribkin, of the Brooklyn Yacht Club. The negative was made by Mr. A. A. Knox, of Brooklyn, from a position at the Government Dock at Sandy Hook, New York Bay, and under the most adverse circumstances. The prints were also made by Mr. Knox, upon Anthony's Reliable Bromide Paper.

All communications for the columns of the BULLETIN *should reach us on Monday preceding the day of issue, to insure their publication at that time.*

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AN OLDER CUSTOMER THAN MR. ROCKWOOD.

THE following communication received by our publishers speaks for itself:

Your BULLETIN for April received, and I read with interest the article on Mr. Rockwood, "your oldest living customer," but if the dates given are correct, he is not so. If you can refer to your books you will find I bought my first stock from you in the latter part of 1856, and have been more or less a customer continuously since that date, and I am thankful to say alive and well.

I may also say that my business relations with your firm have always been of the most pleasant and satisfactory nature, and a warm bond of friendship existed between myself and the lamented E. & H. T.

Yours very truly, WILLIAM NOTMAN.

CORRECTION.

ON page 228 of BULLETIN, line 16, "100 grains of pyroxyline" should be "10 grains," etc.

BULLETIN WANTED.

WE are very anxious to obtain copies of the BULLETIN for January 12, 1889, to complete the lists of our new subscribers; any of our friends who have extra numbers can obtain full price for them at the office of our publishers, if they are in good condition.

THE following is a very curious puzzle: Open a book at random and select a word within the first ten lines, and within the tenth word from the end of the line. Mark the word. Now double the number of the page and multiply the sum by five. Then add twenty. Then add the number of the line you have selected. Then add five. Multiply the sum by ten. Add the number of the word in the line. From this sum subtract 250, and the remainder will indicate in the unit column the number of the word; in the ten column the number of the line, and the remaining figures the number of the page.—*Boston Saturday Evening Gazette.*

ONE of the teachers in the Second Ward school, Alleghany, celebrated the Centennial by telling her scholars the history of Washington and then requiring them to write what they remembered of it. This is what one of the youngest scholars wrote: "G. Washington chopt with his hatchet and bust into teers."—*Pittsburgh Chronicle Telegraph.*

WHEN a rich and miserly man tells me that he is accumulating as much as possible in order to create and endow some great charitable institution in his will, I have no hope whatever that that particular institution will ever have tangible existence.—*Chicago Standard.*

WHEN a murderer confesses his crime and his attorney tries to prove him innocent—well, that's "professional."—*Detroit Tribune.*

"TALK is cheap;" but can it be considered so when it costs a man his reputation?—*Yonkers Statesman.*

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ANTHONY'S
Photographic Bulletin.

EDITED BY

Prof. C. F. CHANDLER, Ph.D., LL.D.,
Aided by ARTHUR H. ELLIOTT, Ph.D., F.C.S.,
and a corps of practical assistants.

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Advertisements should reach us not later than the Saturday preceding the issue for which they are intended, otherwise we cannot promise to publish them in the succeeding number. It is also necessary to notify us of any alteration before the date above mentioned, and to state for what period the advertisement should be continued—whether for one, six, twelve or twenty-four issues.

E. & H. T. ANTHONY & CO., Publishers.

What Our Friends Would Like to Know.

N. B.—We cannot undertake to answer questions of a technical character except through the columns of the BULLETIN. *Correspondents will please remember this. No attention will be paid to anonymous communications.*

Q.—D. H. A. writes: I am troubled in having my pictures curl out of shape very much. I put them on glass to drain for a few minutes, mount with Parlor paste, pack them up as soon as they begin to curl forward, spot and burnish them as fast as possible, and if I pack and press them for two or three days, on taking one out and putting it in the show case, it will curl all out of shape. I have tried thick and thin cards, and other remedies, but with no success. Please give a remedy. I inclose a print. Is it under-timed or under-developed? Have I used too much pyro or too much alkali? What makes the shadows so black and without detail?

A.—The trouble with your prints is probably due to the fact that they are too wet when mounted. After draining dry them by pressing out the water with clean blotting paper, and allow to dry in air until they are nearly dry but still damp; then use stiff paste and not too much of it. Your print is apparently from an under-timed negative. Give more time and don't force development.

Q.—W. B. C. writes: Will you kindly favor me by answering the following in the BULLETIN: I want to mix a developer and measure the strength by the hydrometer, as I believe that is the correct way to compound developers. How many grains to the ounce should I make the sulphite of soda solution and the carbonate of soda solution and the pyro? How much pyro will the soda solutions use in depositing the silver salts in gelatine plates acted on by light, without an overplus or waste of pyro? I understand that all over a certain amount of pyro in the soda solutions is of no value to the development of the image. Am I right or not? Can negative films be used in a glass cornered plate-holder for the taking of portraits? What effect will a decidedly acid solution of pyro have in the developer (made acid with sulphuric acid)? By answering these questions you will greatly favor me.

A.—A saturated solution of sodium sulphite or sodium carbonate should stand 24 degrees on Beaume's hydrometer. The pyro solution can be made 40 grains to the ounce (437.5 grains); then one fluid dram contains 5 grains. To this should be added about 30 grains of sodium sulphite and 20 grains of sodium carbonate to make one ounce of developer. This is a strong developer and should be reduced with water for all except instantaneous exposures. We cannot give an idea about the loss of strength of the pyro; it deteriorates much more by exposure to the air than by its action on the silver bromide. You can probably use the new negative films if you fit a piece of brass wire into the plate-holder to prevent them from springing out; but be careful to have a piece of card about the thickness of a glass plate, so that the films will be in focus. Acid solutions of pyro keep better than alkaline ones, but if you use too much acid it spoils (neutralizes) the alkali of the developer.

Q.—A. C. writes: Will you kindly answer through the BULLETIN, of which I am a subscriber, the following: I have been using a nitrate of ammonia silvering bath. It has got out of order and all I can do will not bring it back to its usual working qualities. Can you enlighten me at all on the subject, or can you give me a good formula of the nitrate am-

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monia bath? The way I am using it now, I take ½ pound of silver and ½ pound of nitrate ammonia and put into 40 ounces of water, and when I want to strengthen the bath I add just a little of the strengthening bottle. Now what I want to know is this: when I add this to the bath it has a tendency to make the bath acid; is it proper to have an acid bath or an alkaline one?

A.—We cannot understand why your silver bath should become acid, unless the silver stock solution is acid. If the latter is acid the silver nitrate is not pure. You can use the ammonia nitrate slightly alkaline with ammonia if you choose; it works well so. A pure silver nitrate bath should be just acid to blue litmus paper, using chemically pure nitric acid for the purpose.

Q.—F. F. S. writes: Please tell me where I can obtain a prepared collodion emulsion suitable for lantern slides; also if it is possible to procure pigmented tissue for carbon printing?

A.—Write to our publishers; they can supply you with both materials.

Q.—J. McN. writes: Will you please give a formula for making permanent photographs on watch dials?

A.—A process for this purpose is described in the "Silver Sunbeam," page 308. The book is issued by our publishers; the details are too long for these columns.

Q.—E. O. T. writes: Why does my printing bath turn milky after using? There is quite a precipitate after standing, which sticks to the sides of the bottle, and a scum forms on the surface. Have treated it for albumen, but without avail. Bath 60, strong, slightly acid, float 3 minutes.

A.—In such a strong bath we would not float quite so long. The precipitate is due to silver chloride, and should be filtered out. Perhaps your paper is too strongly salted.

Q.—J. T. K. writes: I am going to rebuild my photograph gallery soon, and would like to get some information about lighting my operating room. What color curtains would be best for top and side lights? Also, how far should the side light be from the floor and about how high ought it to be to get best results? Could you tell me the name of some material that is perfectly transparent yet at the same time will cut out all reflections, to be used on screens?

A.—In constructing a studio, we should advise you to read the papers of Mr. Duchochois, published in the BULLETIN, Nos. 22, 23, 24 of 1888, and Nos. 1, 2 and 4 of 1889. We do not know the kind of material that you mention.

Q.—W. W. writes: How soon will your "Annual" be ready for 1889? Can you get or tell me where to get the articles referred to at bottom of page 298 in 1888 BULLETIN in regard to stero work, by Mr. Traill Taylor and Mr. W. E. Donkin? Can you recommend any cheap work on stero photography?

A.—The "Annual" for 1889 is in the press and will be issued promptly June 1st. We do not understand the rest of your question; please repeat, and give number of page and date correctly.

Views Caught with the Drop Shutter.

MILLER & HOPKINS, of Brooklyn, have started a new store for photographic supplies at 4 East 60th street, New York.

Messrs. A. G. SPALDING & BROS., the celebrated sporting goods house, have added to their already large and assorted stock a line of photographic apparatus and materials. The well known enterprise of this firm assures for them as great success in this line as they have achieved heretofore in others.

MORRIS EARLE & COMPANY will continue the business lately conducted by W. H. Walmsley at 1016 Chestnut street, Philadelphia.

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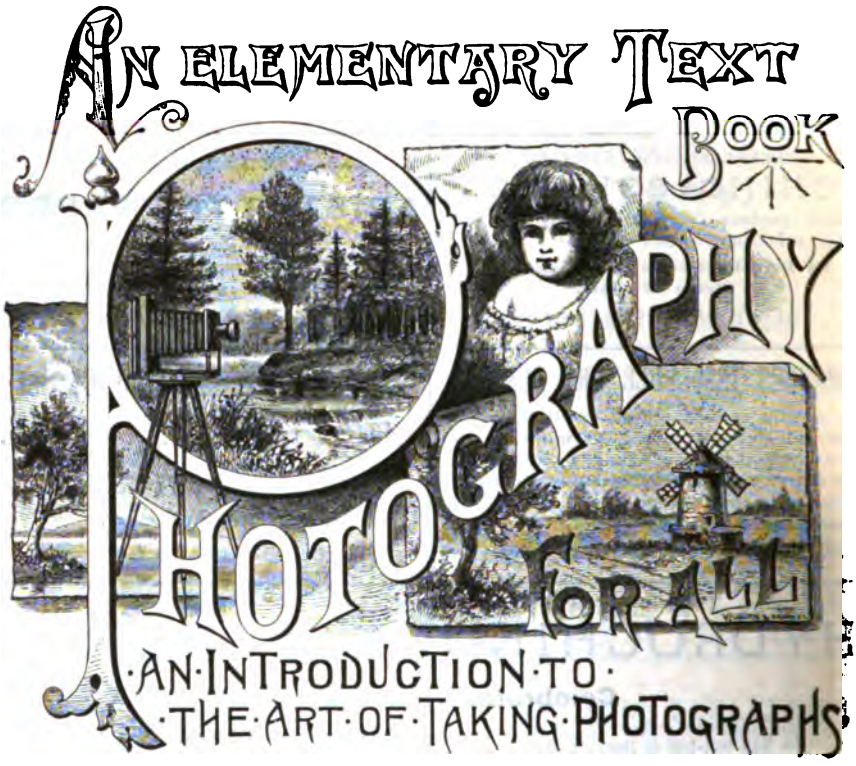
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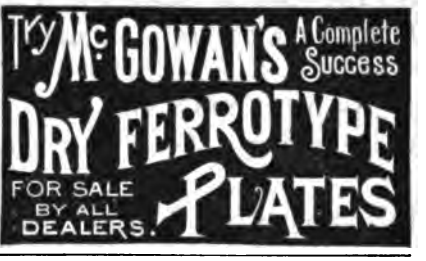
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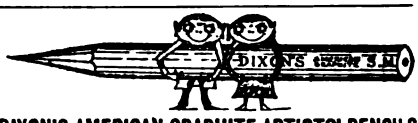
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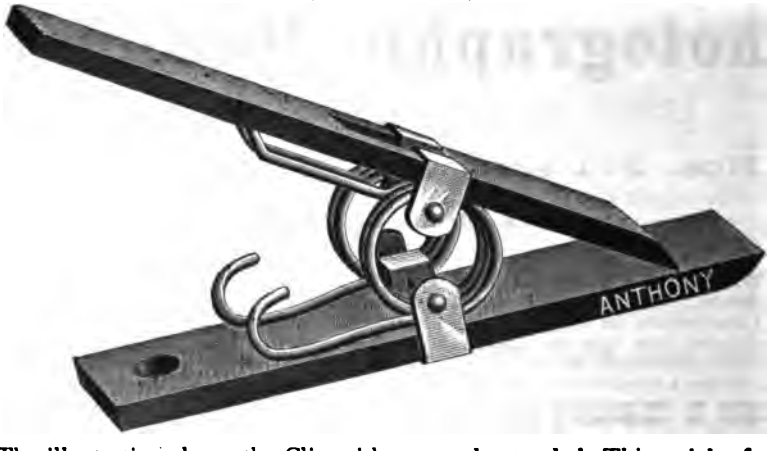
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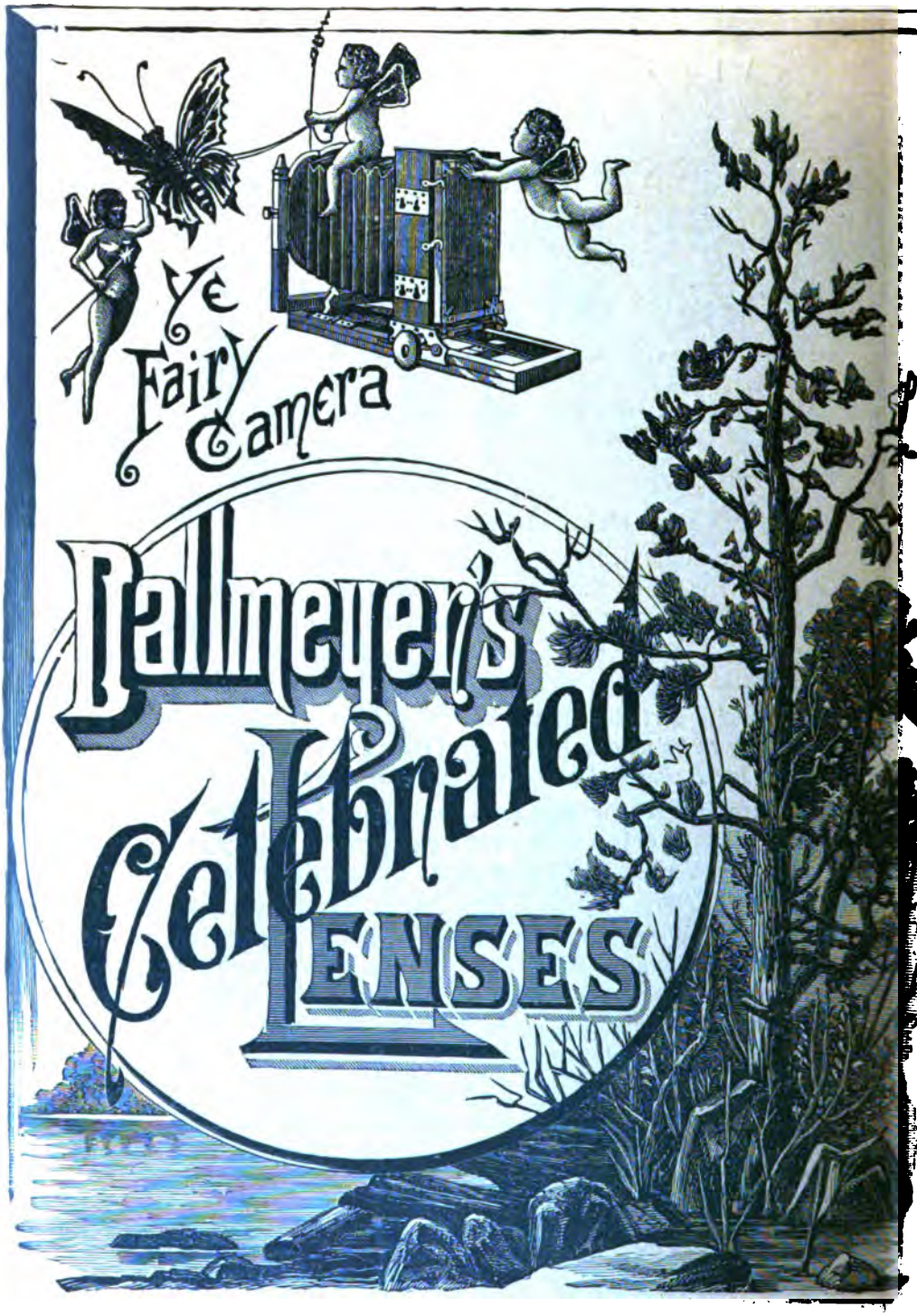
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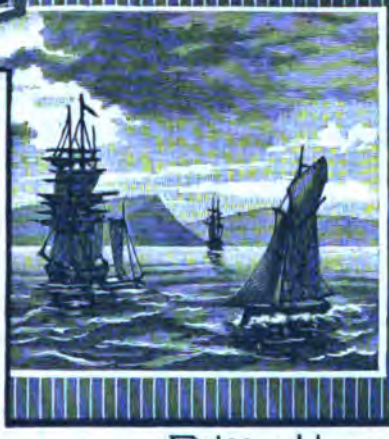
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Vol. 20. May 25, 1889. No. 10.

ANTHONY'S Photographic BULLETIN





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DUPLEX WITH SILENT TIME.

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The Duplex Stereoscopic fills perfectly the want of a time and instantaneous shutter for Stereoscopic work. It consists of two Duplex Shutters on one frame, operated by one lever and one release, and consequently gives two identical exposures. Made in two sizes: No. 1, ¾-inch opening, $18; No. 2, ⅞-inch opening, $19.50. Lenses are arranged at 3¼ inches from centers; but this will be increased, if ordered, up to 3¾ inches for $1 additional. Rotary Stops, $2; Flange Collars, when required, 75 cents. Silent time attachment, $1.50; combined with slow instantaneous, $2.

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THE EVER POPULAR DUPLEX SHUTTER still retains its lead of all others, whether of home or foreign production. The Rotary Stop is considered by an army of users an indispensable adjunct to the shutter, likewise the silent, self-acting time, and slow instantaneous attachment, which operates shutter by direct pressure of air through pneumatic device.

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Openings, inch...	⅜	½	1	1¼	1½	1¾	1⅞	1⅞	2	2¼	2½	3	3½
Price.....	$11.50	$12	$12.50	$13	$13.50	$14	14.50	$16	$19*	$20*	$22*	$24*	$27*

* Including silent time attachment.

Rotary Stops up to No. 1, $1.50; above that, $2. We do not make Rotary Stops for sizes larger than No. 2A, except by special agreement. Silent time attachment same prices as Rotary Stops.

When Flange Collars are required, as on Ross and other lenses similarly mounted, 50 cents extra. Shutters can be furnished for most standard lenses, fitted ready for use, but it is to customer's interest to forward his lens tube with order, otherwise perfect fit is not guaranteed. These shutters are owned and manufactured solely by the Prosch Manufacturing Co. None genuine without our stamp. Circulars containing full information forwarded on application.

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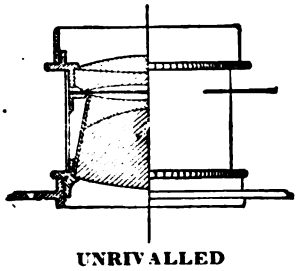
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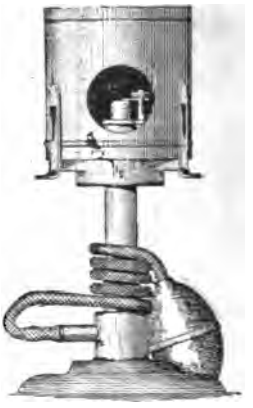


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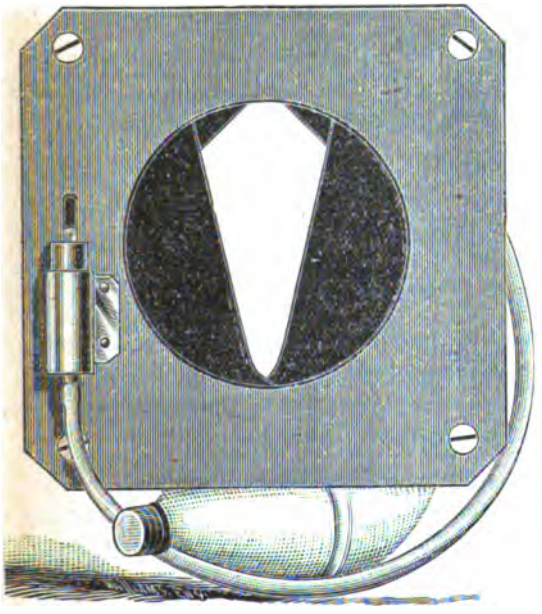
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This Shutter is designed for Cameras having small front boards, and is adapted to gallery or out-door work.

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1889

WILSON'S PHOTOGRAPHIC MAGAZINE

(FOR 25 YEARS THE PHILADELPHIA PHOTOGRAPHER.)

EDWARD L. WILSON,

Editor and Proprietor.

IN presenting my TWENTY-SIXTH PROSPECTUS, I ask the attention of all professional and amateur photographers, and of all who are interested in our wonderful Art, to a few points concerning the conduct of my magazine for 1889.

FIRST. Its local name will be changed to one which will be more in keeping with the wide growth of Photography. *The Philadelphia Photographer* will go out of existence, after twenty-five years of service, and WILSON'S PHOTOGRAPHIC MAGAZINE will take its place. There will be no change in editor, publisher, or owner, nor in the publication, except as to details.

SECOND. The issues will occur on the first and third Saturday of each month, as heretofore. Those of the first will be embellished by an albumen-paper print; those of the third will be embellished by a photo-gravure, photo-engraving, or photo-lithograph print.

SUBSCRIPTION PRICE. For the monthly edition (twelve numbers a year), $3.00 a year; for the semi-monthly edition (twenty-four numbers a year), $5.00 a year. Half-yearly or quarterly at the same rate. Thirty cents per copy. Foreign postage four cents per number extra.

Subscribers to the *monthly* edition should specify which issue they prefer.

Wilson's Photographic Magazine,

By this special arrangement, should be in the hands of *every* one interested in photography. It will not be published from sheer fancy, or for the sake of pushing the interest of any mercantile house. Its long experienced editor is *in earnest* in his purpose to make his magazine subserve the growth and advancement of all that pertains to the art he advocates, and he desires to help those who, like him, depend upon it for a livelihood, and to instruct and assist those who practice it for diversion, or employ it as an accessory help in their own business. The determination is to make it *the best possible* photographic magazine. If experience counts for anything, the balance will turn toward WILSON'S PHOTOGRAPHIC MAGAZINE, for its editor has *grown with the growth* of Photography, and has always kept his position alongside.

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FOR 1889

UNUSUAL PREPARATIONS are already advanced for informing and diverting our 1889 readers. Every number will be embellished by a rich frontispiece, and will include examples of fine portraiture, splendid character studies, landscape and art lesson selections.

New departments will be devoted to short, terse, practical hints, amounting, at the end of a year, to a splendid book. Some elaborately illustrated articles, both amusing and instructive, on posing and the use of accessories and backgrounds, will be started soon. A series of reminiscent articles in honor of the jubilee year (semi-centennial of our art), will begin in January. A complete manual on painting backgrounds and accessories, by the late veteran background-maker W. A. ASHE, of New York, will appear in chapters. It will be invaluable. The present variety of columns, under the care of the editor, will be continued, and it will be his constant effort to make his magazine maintain its long time position, as *"the best in the world,"* and the cheapest. A world-wide connection enables him to secure and give the choicest the photographic world affords. When you buy instruction secure experience with it.

A SPLENDID PRESENT for the employee from the employer, and for the husband from the wife, or from one amateur friend to another. There could not be a more acceptable holiday present than a subscription to WILSON'S PHOTOGRAPHIC MAGAZINE. A neat and tasteful presentation card will be supplied to donors, in order that something tangible may be sent to the favored friend. It will read thus:

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> *Your name has been placed upon the subscription books of* WILSON'S PHOTOGRAPHIC MAGAZINE *for the year 1889.*
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A. A useful and convenient compendium of current thought and practice, on the rapid and constant growth of the art.

B. A skillfully prepared, carefully filtered, judiciously boiled down, and attractive collection of all really valuable matter from all parts of the world—the well coated plate without any waste emulsion on the under side.

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This paper we now introduce to the trade under the name of Improved Reliable Bromide Paper, feeling assured it meets the requirement for an absolutely reliable article.

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4¾ x 6½	60	17 x 20	6 40
5 x 7	65	18 x 22	7 50
5 x 7½	70	20 x 24	9 00
5 x 8	75	22 x 27	11 25
6½ x 8½	1 00	24 x 30	13 50
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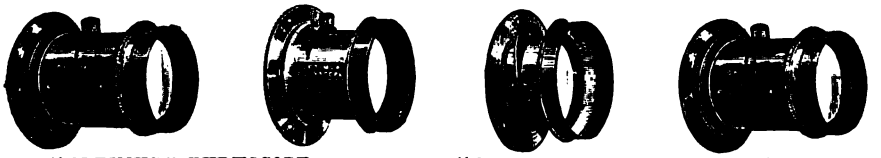
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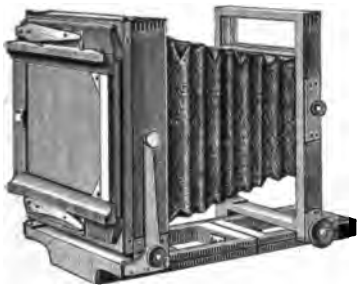
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Photographic Bulletin.

Prof. CHARLES F. CHANDLER, Ph.D., LL.D., *Editor.*
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MAY 25, 1889. Vol. XX.—No. 10.

THE DRIFT OF AMATEUR PHOTOGRAPHY.

In looking back over the results of amateur photographic work during the past four or five years, we cannot help thinking that an immense amount of time and material have been used up in finding the true scope and field for this development of our art. Yet we believe all this labor and material have been necessary to bring into existence a class of workers who are destined to have a very important effect upon the future of photography. These amateurs have had a most important influence upon every department of industry that has for its aim the supply of the materials and apparatus designed to facilitate photographic progress.

In former years the camera and its appurtenances were clumsy affairs, seemingly designed to furnish the amateur photographer with a complicated system of mechanical devices that required a course of instruction in machinery in order to manipulate them with any degree of certainty. To-day the camera box is much simpler, and the better class of instruments are so constructed that the minimum amount of intelligence only is needed to use them. Dry plates and printing papers are now so well made and so easily manipulated that almost any one can obtain negatives and positives without any very large expenditure of brain power or time.

With the simplification of methods has come an increase in the numbers of those who practice photography as an amusement or hobby. As a collateral to this increase in the number of workers, we have had to witness a large amount of aimless work. Of any given number of amateur workers, how few there are who use the art with any definite object in view. Thousands of negatives are taken every week, and among them how few can be called pictures, how few have any story to tell or any important object to carry down into the future! It is true there is a tendency in certain quarters, among a few of the societies, to give a direction to this kind of work; and we hail with joy this first evidence of a desire to give photography a standing among the arts that shall make it valuable to mankind.

There are hundreds of ways in which our beautiful art can be made to serve as a helpmate and handmaiden to the other arts and sciences. It is not

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our purpose to give a catalogue of these, but a few suggest themselves. The study of various trades and industries peculiar to this age, by making good pictures of the workers at their tasks, would give a series of records that may go down to the future with profit, and as the years roll by their value will become enhanced according to the care and faithfulness with which the camera shall secure them. The incidents of our home life, the dinner table and those around it, the library, the parlor, and, more interesting than all, the children at home and at school, would all give pictures that those who come after us will value more than we do. For it is too true that in the development of this great country little regard has been paid to old things, and only now we are beginning to realize that they have their value.

In the sciences also there is a vast amount of good work to do. The botanist needs better photographs of flowers and trees and shrubs, which, by the use of orthochromatic plates, can now be obtained far more faithful to nature than heretofore, the ordinary dry plate giving results that are positively untruthful to nature in the matter of lights and shades. The zoölogist also has much need of good pictures of the animals, birds and fishes in his museums, and also those that are seen in their native haunts. What better work could an amateur photographer set for a task than a record of many of our beautiful flowers, especially the wild ones that cover our hillsides and woods in the early spring? What better and more interesting work could be found for his camera and dry plates than the pictures of our fishes fresh from their native element? Indeed, under certain circumstances the fish could be caught with the camera as he suns himself in the crystal stream. Birds and their nests, butterflies, moths and other insects, curious and interesting to all who love nature, could each be made a *motif* for amateur photographic work.

Again, we need not confine our attention to animated nature. Look upon the hills, the rocky cliffs, the stratified escarpments that are to be seen in rambling through almost any section of the country. These all have some story to tell for the geologist and would be admirable subjects for the camera.

The historian also needs many pictures for his records that photography, and photography alone, is fully competent to make for him. These pictures will be faithfully presented, and are not likely to be distorted as by the pencil or brush in human hands. Old homesteads, old landmarks, old houses that soon pass away in the tendency for modern improvements, should all be secured upon the photographic plate.

But we have said enough suggestive of subjects for the amateur's camera. We are sure hundreds of others will present themselves to those who are looking for an aim or drift for their photographic work. We are glad to notice this tendency of amateur workers, this desire to use our art with the object of making it tell upon the records of the country's history. The very beautiful series of pictures illustrating our great cities, first inaugurated by the Boston Camera Club, is a step in this direction. We hear also of the work of photographing our native trees in classes, which was begun by Dr. N. L. Britton, of Columbia College, several years ago.

Altogether there is a strong feeling among amateurs that they must specialize their work. The time has come when the recruiting of their ranks is not so much an object as the direction of the labors of the good workers among them. The recruits are no longer raw, but most of them are fitted to accomplish work

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that shall tell in the development of photography, and at the same time place it upon a better footing among the sciences.

EDITORIAL NOTES.

Mr. Horace W. Gridley, of New York, has again been awarded a medal at the Crystal Palace exhibition. This award is a bronze medal for his architectural studies, which are pronounced "very fine." We must congratulate Mr. Gridley on his continued success in our art, and hope he will live many years to receive the laurels that always fall upon such earnest devotees to artistic photography.

In our recent notice of the picture of the total eclipse of the sun, kindly sent by Professor W. H. Pickering, we inadvertently gave the credit to his brother, Professor E. C. Pickering. Professor W. H. Pickering is the one that did the work, and to whom the honor is due. When two brothers are doing such glorious work in photography and its application to astronomy, it is not always easy to remember to whom the latest achievement is to be credited.

We regret to note that Messrs. Queen & Co., of Philadelphia, have had to issue the following notice:

"Owing to the continued illness of Mr. Joseph J. Fox, the managing editor of *Science of Photography*, we have decided to discontinue its publication. As the March number will be the last issued, we shall be pleased at once to make good to subscribers, whose terms of subscription have not expired, our indebtedness to them."

The new journal was doing excellent work for our art, and the shortness of its career is a decided loss to photographic literature.

We note the formation of the University Camera Club at the University of Pennsylvania. The officers are: *President*, D. Fuguet; *First Vice-President*, J. E. Carbutt; *Second Vice-President*, P. E. Howard; *Corresponding Secretary*, G. H. Hill; *Recording Secretary*, H. Delaplaine; *Treasurer*, J. M. Mitcheson.

Mr. R. L. Stevens, of the Louisville Camera Club, sends us the following items in regard to his Society:

"We are connected with the Polytechnic Society of Louisville, and as members are entitled to all the privileges of the Society, including the laboratory and hall for our public exhibitions. We have two fine rooms in the Polytechnic Building, including dark room, and being in the central portion of the city, it is very convenient for the members.

"Our Club is a member of the American Lantern Slide Interchange, receiving slides monthly, and we have private exhibitions each month and public every two months during the fall and winter. These have created a great deal of interest, many local slides being added, and our audiences often number over three hundred of the best people in the city. We have arranged for quite a series of outings for the next few months, and expect to receive many new members between now and the winter months."

Our Louisville readers that are not members of this Club, should look into its advantages; we are convinced they are many.

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THE Lynn Camera Club has adopted a new and unique seal. It consists of a picture of the ground glass of a camera, with two inverted figures of amateurs taking views of each other, just as they would be seen upon a focusing screen in practice. The idea is an original one and makes a very effective design.

OUR good friend, Dr. Edward L. Wilson, who was ordered by his physician to stop work, has been rusticating at Littleton, N. H., where he has regained his strength, and returns to his desk in New York with renewed energies. We are glad he has recovered, and hope for many good things from his pen in the future.

THE Society of Amateur Photographers of New York are organizing a special public exhibition of their work done during the Centennial. This will be in the form of a lantern exhibit, and trial nights for slides of members have already shown that a goodly display may be expected. The date of the exhibition is May 28th, at Chickering Hall, at 8 P.M.

WE are indebted to the Cincinnati Camera Club for a very handsome pamphlet of its Constitution and By-laws, and list of members. It also contains the Constitution of the American Lantern Slide Interchange. It is very neatly printed, and the illustrated cover makes a pretty design. We tender our thanks to the Club for its kind remembrance.

As we go to press the "International Annual" comes from the binder and will be ready for subscribers by June 1st. It is well up to the former volume and in some instances it surpasses it.

THE PHOTOGRAPHIC EXHIBITION AT THE CRYSTAL PALACE.

BY ONE OF THE CROWD.

To any one who is partial to the iron horse, commend me to the London, Chatham and Dover Railroad. It is by this route, unhappily, that many persons who wish to reach the Palace are forced to travel. A third-class smoking carriage should be selected by preference (*sic*), when the sensation experienced is novel, not to say exhilarating. Of course on this particular line, one hardly expects to have cushioned seats in the third-class, seeing that bare boards only are provided. Nor does the company provide automatic brakes. Therefore, as the row of extemporized cattle trucks, as they are often familiarly termed, stroll leisurely up to each station, the grating of the guard's hand brake imparts a peculiar vibratory motion to the car as though it were about to leave the metals. All this is decidedly beneficial for the purpose of enabling highly nervous photographers to become inured to this luxurious form of modern traveling.

After an unprecedented run of something less than an hour from Moorgate street (City), in which about nine miles are traversed and over a dozen stations stopped at, the Crystal Palace is at length reached. The turnstiles are passed at last, when Heigh! Presto! what do we see? From one end to another the vast edifice—a colossal, overgrown green-house is a good name for it—has become temporarily converted into a huge photographic depot. Some people have a notion that the Britisher is not good at big things. Perhaps this remarkable display will undeceive them. It literally beats the record as far as photography goes.

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The exhibition has been instituted, so we are informed, for the purpose of celebrating the jubilee of the art science. The first photographic negative we learn was taken in the year 1839, and was made known by Mr. Fox-Talbot in a communication to the Royal Society of that year.

If some of our older workers of less than fifty years ago who have gone "over to the majority" could be resuscitated by the spirit-rapping fraternity, or by other means, to view this show, one would be almost inclined to think that they would feel somewhat bewildered at the endless array of cameras, shutters, dry plates, etc., here set forth. Perhaps under all circumstances, if some kindly and philanthropically disposed reporter were to interview their spirits, they might be inclined to stay in their present quarters, giving it as an excuse that their constitutions were scarcely fitted to withstand the jargon connected with positively the latest developer, the newest camera patent, or the best dry plate or shutter.

Roughly speaking, the exhibition is divided into two parts, viz., the art division, and the portion devoted to apparatus. Let us first direct our attention to the last named. The first thing that strikes an outsider is the enormous amount of competition and emulation that is witnessed among dealers and manufacturers. This is especially the case with regard either to very large or very small cameras. If one firm bring out a camera of more than the usual dimensions, another will shortly introduce a still larger one with all his own pet so-called modern improvements and patents. What one would like to know, is the good of these unwieldy articles except in the studios of the very few operators who cater for aristocratic clients. The amateur does not want these bulky machines, for he now enlarges. So also do a large number of professionals.

The majority of professional operators, whom we see dotted about all over London and the provinces, would feel hurt if anything larger than a panel was suggested. While the despised though useful itinerant, with his dark room on wheels, who will take your tin-type for twenty-five cents or give you a dozen *carte de visite* at the rate of less than a dollar, in which the sitter appears either to be in a rapid consumption, or else in a fog—probably both—would vote you down as "trying to get at him."

With small cameras, however, the case is different. The rage now is for lightness, concealment and simplicity of manipulation. Associated, as it is, with an inordinate desire to take everybody and everything, one can quite understand in these days of simplified enlarging and perfect bromide papers that a detective or hand camera is most useful. This particular outcome of the manufacturer's art, therefore, is likely to be still further perfected and brought into general use as time goes on. The recent introduction of the Kodak by the Eastman Company has stimulated manufacturers on all sides to improve and perfect their small portable hand or detective cameras, as this exhibition well testifies. A beautiful piece of apparatus of this kind is Shew's Eclipse, as is also Anthony's improvement, The Lilliput (a specimen of which I do not think was on exhibit).

Mr. A. R. Dresser exemplifies what splendid work can be done in this direction by means of these hand cameras. He exhibits in the art division a series of small prints about 1½ x 1 inch, which are enlarged up to about 12 x 10. The subject is entitled, "A Study of a Dog After a Stick." The animal, being made to run into the water after a stick, was taken in various positions, many of which are very striking.

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I need not weary the readers of this journal with a detailed description of all the wonderful and varied pieces of apparatus, etc., found at the Palace. There is, however, one novelty which is perhaps destined before long to revolutionize the present dry plate system, should it come generally into use or prove practicable; that is, Dr. Backelandt's dry plates, which are developed merely by water. When these come into regular use many of our literary friends will hardly know what to write about unless they give forth to an admiring public elaborate formulas for *aqua pura*. What with dry plates developed with water and platinum paper developed merely with a weak hydrochloric acid wash, the manipulating tourist who develops his plates in his bed-room and mails specimen prints to his friends is soon likely to have a good all-round time of it.

As to the art division, when it is considered that upwards of 1,200 photographs are on view here, many, if not all, being perfect gems of what an ideal photograph should be, it will be realized that the artist interested in the art side of photography can, metaphorically speaking, feast himself to satiation. To an onlooker the decision of the judges is rather perplexing. The only gold medal is given to Mr. Lavender, of Bromley. His exhibit consists entirely of portraits. Although his pictures are undoubtedly very perfect, still, when comparisons are made, one greatly wonders why other competitors did not equally take a gold medal. Verily the ways of judges are not to be accounted for. Many of the landscapes are exceedingly artistic. A beautiful view of Loch Lomond in sepia is especially striking. It is executed by G. W. Wilson & Co., who receive a bronze medal for Loch Achray and Peterhead Harbor, both of which are very good, but to my thinking do not come up to the first mentioned.

A real picture by Mr. Cembrano, of Richmond, is "At Sunrise." Strictly speaking, I suppose, it is under-exposed, but the effect produced from an artistic point of view can hardly be equaled.

Mr. Gridley, of New York, exhibits a number of very fine architectural studies, for which he has been adjudged a bronze medal.

Sepia tones seem to be coming more into vogue, and many of the best pictures are executed in that tint.

Prints of lightning flashes are getting quite common since Dr. Piffard (I fancy he first originated this) led the way, and several very good specimens are exhibited by Negretti and Zambra at their stall.

It would, of course, be impossible to enter fully into details of the numberless exhibits in this beautiful array of picked photographs. I am afraid I have already sufficiently wearied the readers of the BULLETIN.

A special feature of the exhibition is the lantern slide entertainments, from which those who are partial to this kind of work may get many useful hints. A special lime-light apparatus is used and the pictures thrown onto a screen 30 feet in diameter. With good slides the effect is most striking, for under existing circumstances they are seen in their best. Mr. T. C. Hepworth, the well known author of "The Book of the Lantern," described the views. These entertainments seem to be decidedly popular, and are much frequented by the public at large.

That much is to be learnt from exhibitions of this kind can hardly be denied, and that it stimulates exhibitors to put forth their best efforts is no doubt equally true.

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EDWARD ANTHONY'S EARLY PHOTOGRAPHY.

In the notice of Mr. Edward Anthony's life which was published in several of the photographic journals, there was a misstatement of fact which, though perhaps not important, might lead to misunderstanding. Mr. Anthony became interested in the daguerreotype when the details of the process were first published. He made a camera, and, if I remember rightly, had to prepare most of the chemicals. In fact, the whole of the apparatus was of his own construction. His success was great, as is shown by many samples of his work which were made at that time and which are still in existence.

About this time the question of the Northeastern boundary of the United States was in question. Not the Northwestern, as the accounts we have mentioned state. It was in regard to the interpretation of the treaty which located the boundary between the State of Maine and Canada. The line was located by the terms of the treaty along the highlands which divided the water-sheds, the St. John, Penobscot and the rivers flowing into the St. Lawrence. The dispute at last turned upon a question of fact in regard to the highlands. It was held by the English government that there were none at the place claimed. When the surveying party was fitted out Mr. Anthony determined to take his camera along with him, and bring back if possible visible proofs of the highlands, if any were found. In speaking of it a few years ago he said to the writer that this happened before the tripod, as applied to cameras, had been invented. When the wilderness was reached he set his instrument up on stumps, logs or stones, as happened to be convenient, and so made his exposures. The highlands were found. Pictures were made in which they were shown and these daguerreotypes were duly transmitted to Washington. Probably they might be found among the records if search was to be made. These, Mr. Anthony said, with some pardonable satisfaction, were the first sun pictures—photographs—ever obtained by a scientific government expedition. It may be assumed that this was the first practical scientific use of the art that had ever been made. In the accounts just mentioned it is stated that the pictures were photographs made by the wet process. Photography by the "wet process" had not then been invented, and even the process of Talbot, we think, had not been made public; at least, at the time when Mr. Anthony started on the surveying expedition there was but one process of making pictures by means of the camera.

The difficulties of making daguerreotypes in such a wilderness can hardly be appreciated at the present day. The art itself was in its infancy. There were no teachers for beginners, and all that was known was from the scanty accounts which had been published a year or two before. The country in which the work was done was very wild, and all the apparatus had to be transported long distances upon boats and probably part of the way had to be "packed" by the members of the expedition upon their own backs for want of other means for transportation.

It is impossible for the younger men in the profession to realize that a man has lived so recently who began at the very beginning of the photographic art. Its more recent developments seem like the outgrowth of generations of investigators, rather than the work of half a century.

SKIT.

All communications for the columns of the BULLETIN *should reach us on Monday preceding the day of issue, to insure their publication at that time.*

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[*From Photographisches Wochenblatt.*]

LIGHT SOURCES FOR PROJECTION APPARATUS.

BY F. STOLZE.

It is an old question, but not definitely answered yet, which may be considered as the best light source for the projection apparatus; and this question has gained a particular importance lately in that the magnesium light competes with all the light sources heretofore in use, and in the improvement of the material and apparatus applied for burning it. Under these circumstances, it may be of importance to determine for which purposes and in what cases the several light sources at our disposal are the most suitable.

The question becomes somewhat complicated, as not only glass positives for the purpose of viewing with the eye are projected, but also negatives, developing the projected picture from a positive surface, and thus producing a direct enlargement. In the latter case it is indifferent whether the light source is a constant burning one or whether it is intermittent and flickering, the only consideration being that the total light intensity is the same. For observations with the eye steadiness of the light is the very first condition, and whose absence will exclude any success. On the other hand, the color of the light is for the eye of no consequence, as long as it remains within the usual limits for artificial illumination, while it is of the greatest importance for the photographic reproduction. Finally, the question of transportation has to be considered, as the application of many light sources, which otherwise are excellent, is excluded on account of this. Following these directions, I will try to speak about the principal light sources, namely:

1. Electric light.
2. Magnesium light.
3. Kerosene light.
4. Gaslight.
5. Oxygen light.

I. Electric Light.

At any place where, produced by dynamo machines, the electric light is at our disposal, it is not only the most convenient, but also the cheapest. Its constant illuminating quality has to be particularly considered for application to positive projections. The circumstance that illumination can reach easily 1,000 to 2,000 candles, and that the light source emanates from one point, makes it particularly suitable for the working with condensers. It is also very agreeable that it can easily be regulated, interrupted and colored by the material of the carbon rods. One evil, of course, has to be accepted with the bargain: the sudden flickering which takes place sometimes, caused by unevenness of the carbon or breaking off of the same, and which is unavoidable. Finally, if the motor setting the dynamo machine in motion is not of perfectly even movement, the light will be defective for positive projection; but for negative projection it will be just as useful as a completely constant light. Where electric light cannot easily be obtained, an extended use would only warrant its application and be of benefit. For houses doing a large business in enlargements the electric light would be of advantage, even if motor and dynamo have to be purchased. For a smaller business other light sources would be more preferable. For posi-

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tive projective purposes, where the party travels from town to town, the electric light might just as well be excluded.

II. Magnesium Light.

For positive projection magnesium ribbon only, and not magnesium powder, can come into consideration, while for negative projection both are applicable. In all cases, of course, precautionary measures have to be taken for letting the smoke out. Dr. Meydenbauer's publication in the *Wochenblatt*, page 353–356, describes how to do it with the magnesium ribbon. Another question is, how the same purpose can be attained with magnesium powder. I would like to draw attention here to a method which has already been applied, but not in the manner that I would like to propose. Magnesium flash-light has been produced in a closed space, so that it will act through glass; proofs for this are Gädicke's flash-light box and Meydenbauer's flash cylinder. But to the extended application of this method is opposed the explosive power of the magnesium flash powder, which requires particular caution, as the glass sides, enclosing the powder, may not only be easily broken, but they are also clouded. If in place of this pure magnesium powder is blown vertically upward through the flame of an Argand burner, enclosed by a Meydenbauer flash-light cylinder (not necessary to be wound around with wire), the fumes of the magnesium will remain enclosed, while a magnificent flame is obtained. As in this manner the burning magnesium particles cannot be forced against the glass sides, the latter can easily be cleaned. I am well aware of Professor Schirm's assertion, that pure magnesium powder is consumed without smoke; this, however, is the case of very small quantities only, where the smoke may be disregarded. Larger quantities require by all means the removal of the smoky oxidation product, which appears even in greater volume than with an equal quantity of magnesium ribbon.

So far about the flash-light. As soon as the magnesium ribbon, the only thing that is fit for positive projection, is under consideration, the other style of magnesium lamps is not very suitable for this purpose; the uncertainty of removing the smoke, the flickering of the flame, burning at intervals darker or brighter, cause the light to be unsteady to a high degree. But the new manner of smoke consumption by Dr. Meydenbauer, together with the steadiness of the light center obtained by regulation, offers in return the means to remedy these defects and reduces the fluctuation of the strength of light. If we go now one step further and ignite two or three ribbons in close proximity in a correspondingly constructed lamp, whose fluctuations will never be uniform, their influence will be very insignificant, and can hardly be greater than the one mentioned before with the electric light. It is, therefore, very possible to give also lantern slide exhibitions with magnesium light, although it has to be admitted that in other ways a handsomer, because more uniform, light can be produced for the same.

III. Kerosene Light.

That kerosene light can be used to advantage for positive projections on a small scale is known, and also that it suffices completely for enlargements on sensitive preparations. In the latter case it deserves even oftentimes the advantage over the magnesium light, because it admits, on account of its, chemically, much less active color, by prolongation of the exposure, a better gradation of the

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tones and easier retarding of some parts of the picture. Otherwise the convenience of its manipulation, its cheapness, transportation, and the possibility to get the material at any place, rank it first among all lights, the same as electric light surpasses all others in regard to strength.

IV. Gaslight.

Very nearly related to kerosene light, but capable of greater modification, is gaslight, which, of course, is only applicable where gas can be obtained. It divides in many ways its good properties with the former, which are even increased in many respects. The intensity of the gaslight can be increased considerably with the regenerative burners, and if it was possible to apply the later forms of the same, like those of Wenham and his successors, in horizontal instead of vertical position, a better light source for positive projection could hardly be thought of, as long as the highest intensity, as furnished by electric light, is not required. For negative projection the yellow color of these light sources has always to be considered. To be sure, the gaslight shows here also its universality. As albo-carbon light it approaches already by its white color the chemically more effective light sources, and in Auer's glow-light it comes very near to them. If, in place of the condensing lens, the Meydenbauer mirror-reflector is applied, one is enabled to unite a larger number of burners behind the ground glass, thus increasing greatly the light power. Of course there is still a want of thorough tests of this kind ; but it is worth trial to bring into service this extremely convenient means of illumination for the art of projection.

V. Oxygen Light.

By its complete steadiness, connected with great light-intensity and facility of transportation, the oxygen light will be for some time to come the most suitable for positive projection. It must be admitted that the production and transportation of oxygen has its great inconveniences and even dangers ; but oxygen can be obtained in cylinders, and this could just as well be the case with hydrogen. Suitable pressure regulators are therefore only required to apply both gases direct from the cylinders without filling first the rubber bags. Where gas is at service this is most generally chosen, and where this cannot be had, other combinations—as, for instance, alcohol-oxygen light—are brought into use. The latter being far behind the oxy-hydrogen light, efforts have been made in England and in the United States to find an equal substitute, and this has been discovered in the ether-oxygen light, which I will describe here somewhat more clearly.

The place of the hydrogen gases is represented here by an oxygen stream saturated with vapors of ether, and the apparatus is otherwise handled like that of the oxy-hydrogen gases, both faucets being regulated until the pure oxygen faucet supplies the mixture with the satisfactory quality of oxygen for complete consumption. This seems to be extremely simple, and it would be so if the mixture of oxygen and ether-gas was not explosive in the highest degree. Several serious accidents have taken place in England on account of this circumstance, and the ether-oxygen light, which has been condemned also by the celebrated chemist, Professor Roscoe, gained for some time such a bad reputation that it was hardly ever supplied. But its great advantages, which could not be replaced by anything else, did not leave the scientists at rest, and particularly Hardwich, who not only discovered sufficient means of safety in case an explosion should take place, but he proved also that by a correct manipula-

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tion of the ether-oxygen light an explosion could not take place, and that the danger of explosion is in no way greater than with the ordinary oxy-hydrogen gaslight. It depends, namely, upon the oxygen being actually completely saturated with the vapors of the ether; only when so little, or such aqueous, ether is present in the saturator, that the volume of ether vapor sinks to less than one-half of its normal state, then an explosion can take place. An accident is therefore only possible with great negligence. In England the most different forms of saturating boxes have been tried. In one of the best a spiral spring is between two porous, soaking layers of material, so that the gas is forced to make the long spiral way between the layers soaked with ether, and which before each employment and after complete drying are fed anew, in such a manner that new ether, in proportion to the quantity consumed, is distributed from a reservoir. By drying the oxygen with chloride of calcium or sulphuric acid before its entrance into the saturator, and keeping a little chloride of calcium in the stock bottle of ether to free the same from water, protection is had against any possible danger. But even if defective saturation should take place by carelessness or chance, an accident is impossible, if a pumice stone safety pipe, tested thoroughly with explosive mixtures as recommended by Hardwich, is inserted between saturator and burner. It is clear that otherwise the kind of saturator may be different; as, for instance, in a construction recommended by Ives, the oxygen passes directly over the liquid layer and is detained in its course only by several partitions. In the latter case the liberating of the ether from water by quicklime may take place directly in the saturating dish, and a kind of ether pipe may be arranged, by which one can observe from the outside if a sufficient quantity of the same is always on hand. Generally a liter is considered sufficient for an exhibition lasting several hours. Considering the incandescent body itself, lime is still principally applied for the same, but the bursting of the lime cylinders necessitates always a turning of the same after some time. Otherwise magnesium light has also been applied in place of the calcium light, and the production of the magnesium sticks, necessary for the same, has been described in the *Wochenblatt*. Lately the Zircon light has been brought into use; zirconia, pressed solidly into a platinum capsule, being used as the incandescent body. This has proved to work excellently, necessitating only to press any of the earth, that broke off, tightly into the capsule. The light, of course, is not quite as white as calcium—and particularly also magnesium—light; but it is sufficient even for negative projection. Before I conclude I would call attention to the fact that all kinds of oxygen light, with the sole exception of the alcohol-oxygen light, are dangerous, if they are worked without sufficient care and knowledge. It may happen that by defective manipulation of the weights upon the gas bags oxygen will enter the coal-gas bag or vice versa, and that fearful explosions take place in that manner. Sometimes this takes place by filling of the not quite empty bags by changing of the same and the pumice stone. Safety pipes should always be applied and everybody not being acquainted with its dangers should keep his fingers from the oxygen light.

META-BISULPHITE.

By Dr. John H. Janeway, U. S. Army.

Some months ago I began a series of experiments to determine satisfactorily to myself whether the claims made for the meta-bisulphite of potash, as a perfect

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preservative for pyrogallic acid in solution with other alkaline salts usually composing a developer, were well founded or not. The article which I obtained after considerable difficulty, and which was and is now used in my experiments, it is but fair to state, is a compound of acid of bisulphite and meta-bisulphite, the latter being in excess. The developer used was Ripley's pyro-potash without the citric acid. Several solutions were made in the proportions of 1 meta-bisulphite to 1 of pyro, 1 of meta to 2 of pyro, 1 of meta to 2½ of pyro (by weight), and so on. Immediately upon the solution of the meta-bisulphite in the pyro and sulphite solution of the developer, the solution assumed a light straw color and has maintained that color to the present time, though some of the bottles have not been unstopped, and others freely used from, and all exposed to various changes of light and temperature (34 to 78 degrees). So far its claims as a very good preservative of pyro in solution have in my hands been maintained. In the proportion of 1 to 1 of meta-bisulphite and pyro it was found to be a very powerful retarding agent, and oftentimes rendered development very tedious. In 1 to 2 of pyro it also exerted a strong retarding action at first. Finally the proportion of 1 to 2½ of pyro was settled upon, and though apparently a retarding influence was at first noticed, the developer soon became very energetic, and the development was concluded in about the usual time. The addition of the potash solution to the pyro and meta-bisulphite to complete the developer, changed the latter from a light straw color to a bright ruby. After developing from four to six plates in the same developer, a pellicle frequently formed upon it, and it appeared to become cloudy and slow. Do not on this account throw it away; but put it into a glass-stoppered bottle, and you will find it the next day clear, and a very valuable developer to use on an over-exposed plate, or to begin on a plate, the amount of exposure of which you are uncertain. This developer has not as yet stained any plate in my hands, though I have frequently pressed the development much longer than I have dared to do before. The resultant negatives, as a rule, are of a warm brown color, and are quick printers. It is, I think, decidedly advisable to continue the use of the sulphite of soda in the developer, and at the same time dispense with the various acids and also the bromides. Should an over-exposed plate suddenly flash out, remove it at once to a tray of water and watch the development as it proceeds. When it ceases, return it to the developer and obtain all the density you require without trouble. An accident revealed to me another result of the addition of the meta-bisulphite to the developer, much to my surprise and gratification; one that removes the reproach so often thrown on pyro. In endeavoring to save a plate from an upsetting and falling tray, my hands were covered by the developer and my linen cuffs bountifully sprinkled. (Mental remark: "Cuffs gone up, and beautiful hands to-morrow.") But the hands presented no stains on the morrow, neither did the next week's wash show any ruined cuffs. I then immersed a linen cuff more than one-half in the developer, letting it remain there between three and four minutes, removed and dried it. It was superbly stained. Some hours after I soaked it in water for one hour, when almost all the stain had disappeared. Not having any boiling water at hand, consigned it to the weekly wash, and it was returned to me without a stain or blemish. Generally developing after 3 P.M., and having no longer any apprehension of stained hands or dirty finger-nails, I freely plunge my fingers into the developing tray, to remove the plate for examination, or final abstraction, resting assured that the morrow will find no stains.

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[*Written for "International Annual." Too late for Insertion.*]

OUT-OF-DOOR PHOTOGRAPHY.

BY SAMUEL SIMS, *England.*

BYRON writes, in "Childe Harold's Pilgrimage":

> "There is a pleasure in the pathless woods,
> There is a rapture on the lonely shore,
> There is society where none intrudes,
> By the deep sea, and music in its roar."

If this be true, then the amateur hath his reward, for much of his time is spent in places such as the poet describes.

The amateur is a free lance, and he has this great advantage: he can generally choose his own subject, and the work done, is the outcome of his own individuality and taste.

A great deal has been said as to the relation of photography to art and the sciences. What is its position in regard to history and the past? As persons are fond of history, localities associated with historical events will have an attraction for them. So with regard to great names in literature. How many thousands, year after year, visit the scene of Shakespeare's birthplace, Stratford-on-Avon? In my outings I first find out what objects of interest are in the neighborhood. This not only saves time, but it gives a charm and directness to the work. Research will often reveal interesting facts connected with the neighborhood. Many old county families are now living in the same place their ancestors lived in centuries ago. This is readily seen, in looking up the history of the manor, or the old manor hall, and in the ecclesiastical records of the village church. The village church, with its curious gargoyles, "the little wide-mouthed heads upon the spouts," and ivied tower, makes an attractive picture. But study its history, and connect that in some way with the work you are doing, and you add greatly to its value. The English manor hall has been described in the pages of many of our great novelists, and "Bracebridge Hall" shows that it had an equal charm to Washington Irving. Like the village church, it is typical of English country life.

Last summer I went to a little village called Croxall, about six miles from Burton-on-Trent. Not far from Croxall is Catton Hall, and in the same neighborhood is a place called Dryden's Walk. The biographers of Dryden tell the story of his walk home one night from Will's coffee-house, when he was waylaid and cudgeled by three hired ruffians, but as far as I know they had not related how his name got associated with this part of the country. It was this circumstance that prompted me to visit the neighborhood and try to unravel the mystery. A pleasant road to Croxall is through Drakeler Park, where a fine herd of deer is kept, and you also pass through the pretty village of Walton-on-Trent. But as I had a whole plate camera to carry, I preferred the Midland Railway.

The road on leaving the station crosses the River Mease. The country is mostly level and intersected with many watercourses marked by straggling rows of willow trees. You pass some stately elms, in which a numerous colony of rooks have made their nests, and there before you is the old manor hall. It is a dark brick mansion covered with ivy, with a row of yew trees on each side of the lawn. A photograph was taken of the scene, but the most interesting feature of the old hall is not shown—namely, its past history.

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The Curzons had their home here for many generations. They came in with the Conqueror. A Richard de Curzon held four knight's fees in the County of Derby, and Croxall was one.

The Saxons had to submit to the

> "Good old rule, the simple plan,
> That they should take who had the power,
> And they should keep who can."

The Curzons held possession of the manor up to nearly the middle of the seventeenth century, when Mary, the only representative and heiress of that family, was married to Edward Sackville, Earl of Dorset. Lord Clarendon relates that this same Edward Sackville fought a duel with Lord Bruce under the walls of Antwerp. Bruce was killed, and Sackville, who was wounded, sought shelter in a neighboring monastery.

The Dorsets held the manor up to near the end of last century, when it was sold to Thomas Prinsep, Esq., in whose family it now remains. There is a road through the private grounds to the church, as is the case with so many English manor houses. The church contains chancel, nave and low western tower, in which there is a curious shaped bell said to be mentioned in an inventory of Edward III. The taxation roll of 1291 gave the value of the rectory as £10,134. There are many old brasses and incised slabs to the memory of the Curzon and Horton families. A Roger Horton died in 1422 "seized" of the manor of Catton. He is supposed to have been the first of that family who settled in this part of the country. There is a memorial to the last of the Curzons, and a few yards distant one to the last male representative of the Hortons. In the chancel are several incised slabs with figures of them in armor. In the middle ages the pictures seen from the old hall were like those which passed before the Lady of Shalott as described by Tennyson:

> "Sometimes a troop of damsels glad,
> An abbot or an ambling pad,
> Sometimes a curly shepherd lad,
> Or long-haired page in crimson clad
> Goes by to towered Camelot;
> And sometimes through the mirror blue
> The knights come riding two and two:
> She hath no loyal knight and true,
> The Lady of Shalott."

Near the church, at a bend of the River Mease, is an ancient tumulus and remains of earthworks, supposed to have been thrown up to keep back the Danes who came up the river in their small boats. The way to Dryden's Walk is through a wicket gate near the rectory, and it follows the crest of the hill which looks down on the park and the valley of the Trent.

Dryden's visits were made when the Dorsets held the manor. He dedicated the translation of "Juvenal" to Charles, Earl of Dorset, in 1692. A copy of the 1735 edition is now before me, with a portrait of Dorset in the long, flowing wig of that period. It is likely that some part of that work was pondered over in his walks over the crest of the hill which now bears his name.

The poet Prior relates that when Dryden's pension was stopped on account of his change of religion, Dorset allowed him an equivalent out of his own pocket. Dorset is said to have been one of the most accomplished men at the courts of Charles II. and William III. He served as a volunteer in the fleet in

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the Dutch War, and on the night previous to the fight in which the Dutch Admiral's ship was blown up, is said to have written the famous song:

"To all you ladies now at land
We men at sea indite,
But first should have you understand
How hard it is to write;
The muses now, and Neptune too,
We must implore to write to you."

* * * * * * * * *

The last verse of the song seems to imply that all the men were not at sea and that the latter was not always calm:

"Let's hear of no inconstancy,
We have enough of that at sea."

Catton Hall, the home of the Hortons, is a stately brick mansion near the River Trent.

PHILADELPHIA EXHIBITION.

(*Continued.*)

Mr. James L. Dillon, of the Philadelphia Society, had an excellent series of studies. "This Little Pig Went to Market" was a gem, the idea, the picture of the lady with child and the general artistic effect of the photograph, being of the highest order. Another gem of this collection was a flash-light picture of a laughing baby standing by a pedestal with a statuette on it, and entitled "The Art Connoisseur." Another and somewhat humorous picture had the title, "Where are Those Women?" a group of three gentlemen with four babies in their arms; they certainly looked bored and as if they had mistaken their occupations.

Mr. Alfred Clements, of the Philadelphia Amateur Photographic Club, had a beautiful collection of platinotypes, some the usual dark gray and black tones, some sepia toned, but all gems of artistic photography and every one a study of the picturesque in landscape work!

Dr. Charles L. Mitchell, of the Philadelphia Society, had a number of studies that were very fine pieces of photographic work and many of them very beautiful as pictures; but we must confess that in quite a number of cases the prints were so dark that in this respect the beauty of the pictures was marred. We cannot leave the exhibit without noting one gem, "Cascade on Beecher's Brook, Crawford, N. H." It was a beautiful bit of nature, thoroughly well caught.

John Bartlett, of Philadelphia—well, we are at a loss what to say about this exhibit. The artistic feeling in every picture, the evidence of thought in the selection of the subjects and the extremely careful manner in which they are presented always commands our admiration in the work of this exhibitor. It is useless to go into details; the whole exhibit was a fine one. Those that pleased us best, perhaps, were "Fresh Oysters," "Learning to Read," "Twenty Days to Whitsuntide" and "Old-time Market"—all of which must be seen to be appreciated, every picture being worthy of close study.

Mr. Gutekunst, of Arch street, Philadelphia, exhibited a superb collection of his fine portraits that need no commendation from us; they are masterpieces of this class of photography. He also exhibited a fine collection of phototypes, photo-mechanical prints by his process and well worthy of study; they were exceedingly good samples of this phase of photographic progress.

Mr. John Carbutt had a fine exhibit of views made on his orthochromatic plates. They were certainly wonderfully good witnesses of the utility of this class of photographs. The detail in the shadows, the extremely soft gradation of light and shade and the generally faithful rendering of the various scenes were very pleasant features of the entire exhibit.

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Mrs. S. M. Cleveland exhibited a fine series of studies, generally home-like scenes, and well thought out. Photographically they were excellent.

Harry T. Duffield, of the New York Society, showed a number of excellent landscapes and one or two studies that were well done and give promise of some fine work from this exhibitor.

Charles H. Currier, of the Boston Club, had a few pictures, but several were fine pieces of photography. "A Dress That our Mother's Grandmother Wore," a study in old costume, was excellent; *Little Arthur*, in "Rosedale," was also very fine.

Miss Catherine Weed Barnes, of the New York Society, showed a number of interiors, in which she excels; the work in every case exhibiting care and a very careful study of lighting.

William H. Rau, of the Philadelphia Society, had an excellent exhibit. His bromide enlargement, "A Misty Morning in New York Bay," was a fine picture. Also "Valley Green, on the Wissahickon," an albumen print of an uncommonly pretty view. The flash-light pictures in this exhibit were also fine.

Morris Earle's picture, "Crossing the Log Bridge," was a little gem; also the one entitled "Celebration of the Fourth, Cleeoris Dam," both pictures being fine specimens of photography.

F. C. Beach, of the New York Society, had a collection of pictures that were all good. "A Modern Residence at Orange, N. J.," was a very fine piece of architectural work. "Along the Banks of the Passaic" and "Approach to Paradise Green," both with a decided brown tone, were very good, the tone being admirably suited to the views.

R. T. Hazzard, of the Philadelphia Society, had an excellent collection of studies, by far the greater part of them of the highest merit. "The Old Oaken Bucket," a picture of a country well, was very good. "A Capital Joke," two colored boys, one telling a story which the other is laughing at most heartily, was very well caught and made a very effective study. "The Village Smithy," the interior of an old-time country farrier's, was another excellent picture. One view called "The Gossips," a group of old ladies chatting, was an excellent idea; but was spoiled by the poor background, which was neither artistic nor attractive.

Charles H. Davis, of the Plainfield Club, had an exceedingly artistic exhibit. A portrait of a laughing lady was unique and very pretty. Another portrait of a lady in furs was a very fine piece of work, especially the furs, which were very perfectly caught. Yet another portrait, of a lady in a white dress beside a window, was also very good. We have seen very little professional portrait work that could surpass these pictures. The arrangement of the exhibit was also unique and particularly artistic. The frame, without glass, was made of rough, undressed pine, with rope scroll work as a decoration, a very effective application of crude materials.

W. A. Greenwood, of Falls of Schuylkill, had a very fine flash-light "portrait of a gentleman," and a capital bromide enlargement from a cabinet negative entitled "Look, Mamma, Hobby Horse."

Edward F. Wilder, of the Boston Club, had a good exhibit, which contained some excellent portraits.

E. M. Pine, of the Philadelphia Society, showed some very fine pictures, the interiors being particularly good. In this exhibit we found a combination picture that was unique in being a combination of daylight and flash-light. It was entitled "The Salutation." A gentleman passing in the street outside is saluting a lady sitting at a window inside. The first view is taken by daylight, the latter by magnesium flash at night. The combination is very striking. A bromide enlargement from $4\frac{1}{4}$x$6\frac{1}{2}$ negative of two colored children in a cotton-field, and called "Cotton and Wool," was very well done.

H. A. Latimer, also of the Boston Club, has a large collection of some of the best pictures in the exhibition. Some of the scenes along the Massachusetts coast and in Florida were excellent, particularly those of surf. A frame of studies in this exhibit were very effective, especially "Meditation," which was a

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very pretty picture of a lady apparently in this mood. Another of these, called "A Bowery Boy," was typical of one of the rough characters of the well known street.

Frank Bement, of the Philadelphia Society, had a very fine exhibit of photographs of machinery. This is a very difficult task to make good work with, and the exhibit was certainly one of the best we have seen.

Frank M. Sutcliffe, of Whitby, England, had a most beautiful collection of views. All the pictures were full of artistic feeling, and each had a story to tell full of life and incident. "Rising Mist," a team of three horses with a harrow, and a most wonderful effect in the atmosphere, was very fine. "Winter-time," another of those English farm scenes, with horses and plow, was also full of beauty in its atmospheric effects. "Early Lovers," a country boy and girl, with their rustic garments, evidently much interested in each other, was also very good. "Under the Capstan," a group of fisher-girls knitting; also, "In the Dull Season," fishermen gossiping; "Girls Knitting," a group on stone bulkhead of pier, are a few of the more beautiful pictures in this uncommonly fine collection.

W. G. Preston, of Boston, had some very unique pictures called "I, Me and Myself," after the manner of Colonel Pennington, shown in the BULLETIN some time ago. In one of these three positions of the same individual are shown; in another, two, one position showing a headless trunk, with the hands holding the head on a pillow.

The Rev. F. C. Lambert, of the Camera Club, London, had a very beautiful collection of views and studies. "When the Day is Far Spent," an old couple at the door of a thatched cottage, was an excellent study, rustic, artistic and thoroughly characteristic of English country life. A view of "St. John's Chapel and River Cam," Cambridge, England, was a gem of its kind, and much of its beauty as a picture was brought out by judicious vignetting.

William Parry, of Newcastle, England, had some handsome interiors and also very excellent views of English and other iron-clads.

W. H. Geddes & Sons, of Arbroath, Scotland, had a couple of fine studies. "News from Abroad," a combination print from four negatives, was very finely done. It represented an old couple sitting beside an old open grate fire-place, as seen in the rustic cottages of England; the old man is reading a letter, and his better-half is listening intently, with her hand behind her ear, to catch every word. The picture was full of life and feeling. "The Smith," a combination print from two negatives, was also very good.

Paul Lange, President of the Birkenhead Society, England, had several fine views of frost scenes that were very well done and particularly beautiful.

Richard Keene, of the Derby Society, England, also had a very fine collection of views, mostly of Hardwick Hall, Derbyshire, and scenes in Warwickshire and Derbyshire, all beautiful and very well done as photographs.

Mr. and Mrs. W. J. Anckorn, of Arbroath, Scotland, showed an excellent set of studies. "Auld Robin Gray," a Scotch interior group, was very good. "Auld Granny's Leather Pouch," an inquisitive boy investigating the leather satchel of an old dame while she is interested in reading, was also very effective. "Man was Made to Mourn," an old man reading Burns, was another full of life and feeling.

Alfred Stieglitz, of Berlin, showed a number of the most beautiful Swiss Alpine and glacier views we have ever seen; the cloud and ice effects were magnificent.

George West & Sons, of Southsea, England, had a fine collection of their wonderful yacht pictures. We have yet to see a poor piece of work done by these gentlemen. They are always sure to give us gems in their pictures of yachting scenes, a field of photographic work they have made their own.

J. Pattison Gibson, of Hexham, England, had a superb collection of views, that it is impossible to give a just idea of, they were so very beautiful. The titles will give an idea of the scenes: "We Watch the Speckled Trout Glide By," "Under the Haycock, Fast Asleep," "When Autumn Skies Smile Sweet

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and Calm," and others. Every picture was a gem of thought and artistic feeling in every particular.

Dr. P. H. Emerson, of Chiswick, London, had a fine collection of photogravures of his beautiful studies, each one artistic, and telling in the most perfect manner the story they were intended to relate. Some few were pictures of scenery; these also were beautiful and very artistically caught.

And now, last, but by no means least, we come to the beautiful views of Professor S. W. Burnham, of the Lick Observatory, California. These were pictures of interiors in the Observatory, and some very wonderful land and mountain scenes around Mount Hamilton. Among the collection were the beautiful moon pictures, which our subscribers are acquainted with from the illustration in our January issue.

The transparencies shown at Philadelphia were certainly below the mark, both in number and quality, compared with previous exhibitions. There was one exhibit that is worthy of notice and which saved this part of the exhibition from being an entire failure. This was the collection of Hamilton Emmons, of the Boston Club. His transparency enlargements from 4 x 5 negatives, of the "Yosemite Falls," and other Yosemite views, are excellent, and merit high commendation.

Looking back over the entire exhibition, we cannot help a few reflections. In the first place, the Englishmen are ahead of us in landscape work ; but many of these were professionals. Nevertheless, the amateurs of the British Isles are ahead of American amateurs in the same field. In composition studies America appears to hold her own, in thought, in feeling and in selection of subjects. Looking at the work of the societies, we feel very much ashamed of New York, the Amateur Society, of this city, making a very poor show, considering the number of its members.

As an exhibition it was an undoubted success, for the reason that it contained many things to study, and hosts of good lessons to be learned by those who looked at the pictures with inquiring minds. If New York can give us a better exhibition in 1890, it will be fine indeed. We believe she can. Then let all work for it, and begin *now*.

A COMPARISON OF DEVELOPERS.

BY LYONEL CLARK.

[Before Camera Club Conference, London.]

NATURAL historians will tell you that whenever a new species is introduced into a new country, it begins to multiply and increase to a most alarming extent, but after a few generations Nature re-asserts her ordinary law and the new settler settles down to its ordinary and normal rate of increase. In photography we find somewhat of a parallel : the advent of any new process is received with a burst of enthusiasm, its application is universal, and its merits or faults are extolled or condemned with as much exaggeration as any unpopular Government measure in Parliament, and it is not until the first effervescent exuberance of its disciples or the deep anathemas of its opponents have subsided, that it is possible for the still, small voice of Reason to make itself heard, and allow the new-comer to be judged strictly on his own merits.

Our latest advent from other climes is quinol; this is, however, not of foreign origin, being no other than an indigenous species, which, under the name of hydroquinone, was first proposed and introduced to the photographic world by our worthy President, and that in this very room, and from the rostrum that I myself am now occupying. On its first introduction, however, it did not meet with any general favor, and it was not until, like old brown sherry, it had made

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a voyage across the seas and back, that it was found good enough for the palate of our connoisseurs.

Slight as was the enthusiasm with which it was first received, its restoration to the land of its birth was, however, attended with the most fulsome flattery, and all that exuberance of expletives for which our Gallic brethren are so justly famous. The new developer was to do anything and everything: a very conjuror's bottle, out of which could be got the restrainer of over or the accelerator of under-exposure—a very panacea for all our photogenic woes or maladies. One loquacious apostle of hydroquinone, carried away by his own enthusiasm, actually went so far as to style it an "automatic" developer, thus abolishing at one fell swoop all the science and beauty of development, and all the power that chemistry has put into our hands, to compensate for its own shortcomings, or the unwillingness of nature, and to enable us to relieve our beloved pursuit from the reproach that it is a mere mechanical process.

But these furious atmospheric disturbances have now subsided: we have left the roaring forties of exaggeration for the quiet doldrums of reason, and quinol, as I prefer to call it, is on its trial at the bar of the photographic world. The case was opened by Mr. Swan, in the Photographic Society's rooms, but a short time back, when this gentleman, in a most able lecture, very fairly stated its merits. But, on the principle of an old proverb, if I may venture to say so, I do not consider that Mr. Swan carried his investigations far enough. Development is a fairly complicated phenomenon. There is something besides the mere bringing out of detail or getting density; there are the gradations, or intensity scale of the negative, to be looked after, and this I consider the real secret of universally successful development.

A photograph of nature is made up of not only high lights, half tones and shadows, but of every gradation or nuance between these salient divisions. However white the paper we make our prints on may be, it will always be less so than the bright high-lights, and the deepest blacks of the print will be behind the dark shadows of nature. We have then to compress the scale of tones of nature into the short gamut that our printing processes give us; and it is therefore evident that the developer that can give the greatest range to this gamut will, *cæteris paribus*, be the most useful.

To make this point clearer, a certain light intensity will give the least appreciable deposit after development on the sensitive film, whilst the darkest deposit that we can admit, this point depending on the particular printing process we intend to use, we will assume to be obtained by a light one hundred times as intense. In exposing we must expose long enough for any desired detail in the shadow to impress itself on the plate. We will take this amount of light as our unit. Now, any light one hundred times as bright as this unit point will then be represented on the plate by the maximum amount of deposit possible; and therefore any lights that in intensity are superior to this figure must all be represented by an equal amount of deposit; that is to say, they will all give the same appearance on the print, and we shall lose all detail in the high lights. Now suppose that, by some modification of our developer, we could so manage that our maximum deposit was only attained by a light two hundred times as intense as our standard minimum, I think it will be allowed on all hands that this is not only a valuable, but an essential property.

It is to ascertain what are the capabilities of quinol in this direction as com-

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pared with pyro-ammonia and ferrous oxalate, that I have undertaken the following experiments. I have not sought in any way to find out the developer that will give the most detail on a plate; from a very exhaustive series of experiments that I made last year, I was led to the conclusion that no alteration in the constituents of the developer in any way affected the amount of detail that was brought out, provided that sufficient time were given. I believe Mr. Cadett has also come to the same conclusion, and as my present set of experiments show the same result, I think we may consider it as an axiom, that the action of light on a dry plate is absolute, and no strengthening of the developing agent can bring out what does not really exist.

Mr. Swan, in his experiments, made a comparison by means of ordinary negatives. I have seen these negatives, but I have found it most difficult to make any very reliable deductions from them, and even Mr. Swan was obliged to acknowledge that it required a long and careful examination; I therefore in my experiments decided to use a graduated sensitometer screen, which may aptly be described as a negative reduced to its simplest expression. The plates used were the Castle Brand, the same as those used by Mr. Swan; they were all exposed to a uniform light behind ground glass for equal periods of time. The time was taken from a pendulum beating half seconds, and every care was taken to insure the negatives being equally exposed.

The developers compared were: Pyro and ammonia, quinol and caustic soda, quinol and carbonate soda, quinol and carbonate potash, quinol and ammonia, ferrous oxalate. The pyro used was sulpho-pyrogallol, and the quinol was Byk's, and was made up the same as the pyro with four times its weight of sulphite of soda, acidified with sulphuric acid. The caustic soda was that fused in sticks. The carbonate soda was the anhydrous salt, and the carbonate potash the ordinary one of the pharmacopœia. The ammonia was the ordinary so-called 880 degrees, but I cannot guarantee its strength. The ferrous oxalate was made up of acidified saturated solutions of potassium oxalate and protosulphate of iron. The restrainer used was invariably potassium bromide.

At the risk of being prolix, I will again state exactly those points in development I was investigating. Some little time back, I saw some photographs of Captain Abney's; they were of snow scenes in the Upper Alps, and although the range of tones between the bright reflected light on the snow and the deep shadows in the fir-trees was enormous, yet they were all proportionally represented in the photograph, both as regards the details in the shadows of the trees and in the high-lights of the snow. These plates were developed by pyro and ammonia, and Captain Abney was kind enough to make known the particular formula he used for these views, which will be found on page 24 of Vol. II. of the Camera Club Journal.

In my own mind, I set this result down as the standard of excellency that any developer must attain in order to come into universal use.

How far quinol was capable of doing this the following experiments will, I hope, show. I will not weary you by going through them *seriatim*, but rather give you my deductions.

Commencing with pyro, we find the following laws: by decreasing the quantity of pyro, the alkali remaining constant, we get loss of detail, and also loss of density in the high-lights; if, however, we continue development long enough to bring out all the detail, then the density in the high-lights has also

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increased, and the result is what I call normal. If, however, while keeping the pyro down—say, ½ grain (all quantities are in grains per ounce of developer), and increase the ammonia up to four or six minims—we find that now we can get out all the details before the high-lights gather any great density, and, therefore, we get a long, low curve. This is precisely what we require; we have brought out the detail in the shadows, and the high-lights have not yet assumed any over-density, although by the suitable addition of more pyro we can at any time get any amount that we may desire.

Now, as to the behavior of quinol under such circumstances, I am sorry to have to admit that it totally fails; its action is very distinct from that of pyro. If we decrease the quinol we lose detail, just as in pyro, but if we increase the alkali, unlike the pyro developer, we get no increase in detail, or, what is the same thing, no increase in the speed with which it appears, unless we add the alkali to a most enormous and impracticable extent, and this is practically the same whatever alkali be used. Ammonia appears to promise the best results, but it has to be added to an enormous extent, and then green fog makes its appearance with as much vigor as in any pyro-and-ammonia developed negative.

(*To be continued.*)

THE ARISTOTYPE.

BY JOHN A. LORENZ.

THE artist engaged in photography, knowing the shortcomings of it, hails with joy everything new in the way of inventions or discoveries that tend to give him control over his work, so as to make it conform more to the principles of art.

The photographer will tell you that the stretching of the paper is a matter of no consequence; it is not *enough to amount to anything*. Of course it is not to him who will take a negative and remove just what he chooses, and still be under the impression that he is making a likeness; but it makes a great difference to the artist whether the proportions of the face and figure are kept or not, as well as other effects which go to make up the resemblance to its original.

We have heard at different times from men who have had schemes for getting the photographers' money, the cry like the false prophets of Scripture, lo here! and lo there! this and that will do wonderful things; and we listened—listened financially, some of us—as they promised to point out the way we were looking for; but we had to rest on the promises—there was no fulfillment.

Now I believe we have in the aristotype paper something with which we can more nearly approach a drawing than with anything that has yet been used as a medium for printing. We await hopefully, though not very patiently, for the manufacturers to overcome some defects in it that will give us a perfect paper. Its defects, we take it, will be corrected as were those of the dry plates in their early days, through the honorable competition of manufacturers, and their desire to correct defects that were pointed out to them by the craft or in whatever way discovered. Then we expect to have a paper that will not distort a picture and that will preserve the fine detail of the negative as we have retouched it; to concentrate the interest at certain points and to make subordinate others; that will keep the high-lights through the toning bath without requiring the shadows

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to be over-printed ; and so give that gradation from the midnight shadow up to the highest point of light that is so pleasing in a careful drawing or engraving.

It is too much to expect that any paper can be handled with the ease and certainty of albumen paper; but an artist will gladly take the extra pains required in the management of aristotype paper when he sees that the infinite care he has taken with his negative loses nothing in printing, instead of feeling, as he often must with an albumen print, that it has suffered something from distortion; that while the shadows are right, the delicate sparkle of the high-lights is gone; or, if it is kept, the general effect of the print has been made too dark in order to keep it.

The high polish of the aristotype, though giving the beauty of the ivory miniature, we do not consider an essential to the art quality of the picture, but that most of all will appeal to people who judge things by the shine, that being the only standard by which the great majority judge things photographic or other; and so, though that be the least of its good points artistically, it may, from a business point of view, be the greatest; and so, long live the shine! like other flattery, may it please fools and not displease the wise.

COMPARISON PRINTS FOR PROVING THE VALUE OF ORTHOCHROMATIC PLATES.

BY DR. H. W. VOGEL.

YESTERDAY I received your valuable BULLETIN, No. 7, containing two illustrations of a landscape taken with an orthochromatic, and also with an ordinary plate. These pictures should show the superiority of the color sensitive eoside of silver plate over the ordinary plate. But though my friend, the late Obernetter, and I, are the inventors of the eoside of silver plate, I must confess that in the copy of your journal before me the landscape taken with the ordinary plate makes the better impression. What is the reason? Many thousands of eoside plates are exposed together with ordinary plates under the same circumstances, and by this comparison the superiority of the former is sufficiently proven here in Germany.

To make such proofs valuable certain conditions must be fulfilled. 1. The negatives must be taken under exactly the same conditions; the same time, exposure and lens. 2. They must be developed together in the same developer, one as long as the other. 3. They must be *printed under the same conditions*, by any light printing process, or else by collotype. 4. If they are reproduced by collotype both prints must be made from the same collotype the same length of time. It is well known that prints from collotype plates differ in intensity according to the strength of the dye and the quantity of it rolled on. Therefore *only those prints or pictures are comparable which are printed together on the same sheet of paper*. These pictures should have been mounted together, and that has been omitted in the BULLETIN. I note a light printed specimen on an ordinary plate united with a dark printed one from an eoside plate. By this failure a true comparison of the two is impossible.

BERLIN, April, 1889.

NOTE.—We are very much surprised that Dr. Vogel obtained such a poor specimen of the BULLETIN illustration as to lead him to write the above note,

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and sincerely hope none of our other readers have encountered the same difficulty. All the prints which we have seen have proved beyond a doubt the superior qualities of the eoside plate. But what Dr. Vogel says about comparisons is well worth noting, and therefore we give his letter in full. We expect to show more work with the eoside plate in the future, and shall profit by the advice given above.—Eds.

THE ORTHOCHROMATIC PICTURES.

Lawrence, Kans., April 20, 1889.

To the Editors of the Bulletin:

In regard to illustrations in issue of 13th inst. there is a striking difference in the matter of definition. The one on the ordinary plate lacks detail in the distance very much as if it had been taken through a large stop. The one on the orthochromatized plate defines the distance sharply, and must have been taken with the lens stopped down. We are left to suppose that the difference is due to the different plates, but this special difference looks like a difference in diaphragms. Respectfully,

T. B. Shane.

Ed. Note.—The difference is due to the plates in every case.

JUBILEE EXHIBITION AT BERLIN.

Rules, etc.

1.—Exhibition takes place from the middle of September to middle of October.

2.—The Exhibition has *five* divisions:

a. History of Photography and its Applications to Science, Art, Industry, etc.
b. Portraits and Landscapes of Artistic Value.
c. Photo-mechanical Printing.
d. Apparatus and Chemicals.
e. Photographic Literature.

3.—Members and non-members, professionals and amateurs, are admitted as exhibitors.

4.—Applications have to be made to Dr. W. Zenker, Wichmannstrasse 17, Berlin W.

5.—Every exhibiting member pays per square meter of wall, table or floor surface, 4 marks; non-members, 8 marks.

6.—The Exhibition goods have to be in place August 31st. Address: Royal Academy Building, "Unter den Linden," No. 38, Berlin W.

7.—Exhibitors and their representatives have free admission to Exhibition.

8.—It is the intention to issue diplomas of excellency, etc.; no particulars yet.

9.—Articles from the United States will be collected by E. & H. T. Anthony & Co.

10.—Shipping expenses both ways are paid by the exhibitor.

11.—Exhibits cannot be withdrawn before the close of the Exhibition.

12.—The Society insures the square meter up to 100 marks. For other damages the Society is not responsible.

13.—Pictures may be framed or not at the option of the exhibitor.

14.—It is recommended to mark on the picture lens it was made with, developer, time of exposure, date, weather, etc.

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PHOTOGRAPHIC LITERATURE.

To the Editors of the BULLETIN:

I notice in your issue of April 13th a report of a discussion, at a meeting of the Photographic Section of the American Institute, upon the reliability of the information given in our photographic literature. I am afraid that if we cornered those men who say there is never anything in our journals, we would find that nine-tenths of their knowledge has been derived from such sources. The truth is that contributors give us what they deem best and most important, and it remains for the intelligent and thoughtful reader to bring these statements of fact to bear upon each other, and to so fit one into the other that the whole truth is obtained. Like others of nearly thirty years' standing, I expect to see repeated over and over again by others the experiences of my younger days, as well as a revival of old styles and methods; yet even this constant reminding of the past is a very good work.

I must say that even during the last year I have received points from the BULLETIN that have been invaluable, and probably worth hundreds of dollars, simply because they fitted in at the right time.

Our brains are very like our internal economy. A medicine will affect two men differently. In one case it will enter into the blood and revive the man, clearing his brain and imparting new energy. In the other case it simply does nothing. Many a seemingly simple statement recorded in the BULLETIN, the result of weeks or months of research, hinges upon most important issues if it strikes the thinking man at the right time.

It gives me much pleasure to bear testimony to the reliability and "aliveness" of your most welcome magazine. I am yours, W. J. TOPLEY.

OUR ILLUSTRATION.

SOME time ago Mr. Haywarde S. Cozzens sent us a number of excellent pictures for criticism. We found them to be so well done from both artistic and photographic standpoints that we determined to capture at least one of them as an illustration for the BULLETIN. The frontispiece of this issue of our journal is a very good photo-mechanical print from the view selected. It is one of those charming scenes up in the New Hampshire mountains that gives such a restful feeling to all who are fortunate enough to enjoy them. Among those glorious hills, with their ever-changing phases of cloud and sunshine, life passes as a dream, and the world below seems like a boiling caldron, with its rush and bustle. We are glad to be able to present to our readers a glimpse of one of the peaceful farming scenes of the region we speak of. The quiet team of oxen, the field with its fresh grass, the trees in the distance and the neat farm-house, give us an air of country life that makes us almost feel now the refreshing breezes that play among those old hills. We must congratulate Mr. Cozzens on having caught so faithfully the spirit of the region where he took his picture.

A PHOTOGRAPHERS' TRUST.

OUR publishers request us to present the following statement to the readers of the BULLETIN:

We have noticed in the New York *Times* of May 16th an article copied from the Buffalo *Despatch* relative to a photographers' trust, which implies a combi-

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nation being formed for the advance of the price of work of photographers. It is well known that many photographers have advertised to make cabinet photographs at $1 a dozen, and it is ruinous to photographers at large, and to themselves. No one can afford to make pictures of excellence that are works of art for this price, and anything that would be for the interest of photographers, whereby a remunerative amount of money could be made on their work, ought to be sustained by every well thinking photographer. We have seen some garbled reports that do not fairly represent the position which we take in the matter, and we would not want to be placed in such a position as to have photographers think we were not in sympathy with them to form any plan which would be advantageous to the greatest number in the profession, and we will, as we always do, use our best endeavors to advance the interest of photographers, and whatever may be done for their interest will also be for ours and for the interest of every dealer in photographic materials. E. & H. T. ANTHONY & Co.

"BOSTON ILLUSTRATED."

The following letter, received from Mr. W. Garrison Reed, speaks for itself:

AMATEUR PHOTOGRAPHIC ASSOCIATION,
Crescent Chambers North, 3 Lord Street,
LIVERPOOL, April 9, 1889.

DEAR SIR,—I beg to acknowledge the safe arrival of the set of slides, "Boston Illustrated." They were exhibited at our meeting April 4th, and were much admired. The getting up of the whole thing is a model for imitation. I am requested by our Association to write to you and tender our hearty thanks to the Boston Camera Club for the gift, and to say that we shall have much pleasure in accepting the trust, and in facilitating, in all ways, its full use. I have already a number of applications for the set. They are being exhibited in Manchester to-night; they will be in Birkenhead on Thursday, the 11th inst.; London Camera Club, 18th; Glasgow, 23d; Warrington, 30th; and I have applications from Glostor and Hull, dates not yet arranged.

I confidently anticipate that the idea will be taken up, and that you will, in due course, receive similar sets of slides.

Belive me, Yours very truly, WALTER A. WATTS,
To WILLIAM GARRISON REED, *Hon. Secretary.*
Boston Camera Club.

TWO MORE VETERANS.

OUR publishers have received the following in recent letters to them:

"In your last issue Mr. Notman lays claim to being your oldest living customer. I dispute his claim and go him a year and a half better (1855). In that year I made two half-plate daguerreotype views on plates from Mr. E. Anthony.

Yours very truly, J. A. PALMER."

THE following is written on an old invoice from E. H. Alley:

"In BULLETIN you speak of your oldest living customer. Look at the inclosed and correct record. * * * I was in the store the year before the date of this bill (May, 1858)."

In this latter case it is curious to note the prices of photographic materials: 1 pound callodion, $1.50; ½ pound silver nitrate, $9; 3 yards plain background, $1; 1 scene background, $6.50; Snelling's Journal, 1858, $2. We are very glad to note that our good friend did not neglect photographic literature in his early days, and he is still faithful in this respect.

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ANTHONY'S
Photographic Bulletin.
EDITED BY
Prof. C. F. CHANDLER, Ph.D., LL.D.,
Aided by ARTHUR H. ELLIOTT, Ph.D., F.C.S.,
and a corps of practical assistants.
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" " twelve issues..... 15 "
" " twenty-four issues..... 25 "
No discount on less than six issues.
Special positions *by the year only*, $15.00 per issue *net*.
Special Notices, 25 cents per (nonpareil) line for each insertion, payable in advance.
Remit by Express Money Order, Draft, P. O. Order, or Registered Letter.
Advertisements should reach us not later than the Saturday preceding the issue for which they are intended, otherwise we cannot promise to publish them in the succeeding number. It is also necessary to notify us of any alteration before the date above mentioned, and to state for what period the advertisement should be continued—whether for one, six, twelve or twenty-four issues.
E. & H. T. ANTHONY & CO., Publishers.

ROCHESTER CAMERA CLUB.

THIS Club was organized January 3, 1889, with a charter membership of fifty, and the following members were elected officers for this year: President, G. Hanmer Croughton; First Vice-President, George W. Rafter; Second Vice-President, Samuel H. Lowe; Secretary, Peter Mawdsley; Assistant Secretary, J. Louis Willard; Treasurer, James Streeter. Executive Committee: Henry W. Mathews, Chairman; James Streeter, H. E. Townley, and the President and Secretary ex officio. Finance Committee: Edwin W. Horne, John Carey, A. S. Clackner. Regular meetings and social meetings are held Thursday evenings alternately. The rooms of the Club are in the Kirley building, on East Main street, and consist of the meeting room and a large and commodious dark room. The regular meetings are devoted to the regular business of the Club and a demonstration. A paper follows. The evenings of the social meetings are informal affairs, and the members meet to talk over their successes and failures, and the inexperienced member finds some one to aid him in development of some plate he dares not risk himself. The following is a list of the events that have taken place at the regular meetings since the organization.

January 17th: The Club made a test of several flash lamps and compounds. The best results were obtained by the lamp burning pure magnesium.

January 31st: The merits of four different developers, two pyro and two hydroquinone, were tested on an 8x10 plate that had been exposed, then cut into quarters. There was very little difference in the results, the President deciding that the result was slightly in favor of pyro.

February 14th: The thanks of the Club were tendered to the publishers of the different photo journals for favors received, and the Secretary instructed to notify them of the same. The Club was then entertained by one of its members, Mr. C. C. Goodale, who exhibited lantern slides from negatives made by him in a trip through the island of Hayti.

February 28th: Several new members elected, and the Executive Committee announced the offer of Mr. W. Garrison Reed, on behalf of the Boston Camera Club, of the loan in the future of "Illustrated Boston," which offer was accepted with thanks; and the Club resolved to try their hand at illustrating Rochester after the manner of Boston. The President appointed Mr. C. Fred. Hovey, Peter Mawdsley and John Carey a Committee to carry out the above resolution.

March 14th: The demonstration consisted of making transfers with transferrotype paper and was successfully carried out.

March 21st: The Club gave its first lantern exhibition at the Damascus Temple, about one hundred and sixty slides being shown, all being the work of members. The hall was crowded and every one well pleased.

March 28th: The enlarging on bromide paper with a Cooper enlarging lantern was finely shown by the President, Mr. Croughton.

April 11th: Negatives made by the Kodak were developed and made ready for printing from. At the next regular meeting it is intended to show the carbon process.

THE PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

A STATED meeting was held Wednesday evening, April 3, 1889, with *Vice-President* John G. Bullock in the chair.

The *Secretary* reported the following donations to the library:

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A pamphlet by Conrad Beck, "On the Construction of Photographic Lenses," by Messrs. Morris Earle & Co. A series of photogravure plates entitled "Pictures from Life in Field and Fen," from the author, Dr. P. H. Emerson, of London, England. Both gifts were acknowledged by a vote of thanks.

The Committee on Lantern Slides reported as follows:

The slides last received through the American Lantern Slide Interchange were those of the St. Louis Camera Club, and were shown at the Conversational Meeting, March 20th. The general average of these slides was high, and the set, which comprised fifty gelatine positives, gave evident enjoyment to the members. The work of J. W. Dunn, including some views of an ice pack upon the Mississippi, winter sports and a figure study; a dog sitting for his portrait—"A Study in Portraiture," and other figure compositions by Robert E. M. Bain; a flock of geese and a church interior, and other specimens of the work of the Rev. C. M. Charroppin, S.J.; animals, by William M. Butler, and some excellent marine views by W. W. Withnell, were especially worthy of notice.

Slides were also shown by members of the Society as follows: By Mr. John Carbutt, of views in Pike County, Pa., made on orthochromatic plates; Mr. Henry Harrison Suplee, Mr. Thomas Wakeman Lane, Mr. O. D. Wilkinson, Dr. A. Graham Reed, Dr. C. L. Mitchell, Mr. J. A. Shulze, Mr. Frank S. Lewis; some fine studies of ducks and other barn-yard animals caught with a Detective Camera; Mr. Edmund Stirling, and Mr. William H. Walmsley.

The American Lantern Slide Interchange has organized for 1889 by the election of George Bullock, of the Cincinnati Camera Club, as manager; and William H. Rau, of the Photographic Society of Philadelphia, and F. C. Beach, of the Society of Amateur Photographers of New York, as assistants. The Philadelphia Amateur Photographic Club has withdrawn, and the New Brunswick Cameras have been admitted to the Interchange.

The Committee on Joint Exhibition reported that the exhibits had all been received and were being placed in position in galleries of the Academy of the Fine Arts. The exhibition would comprise nearly seven hundred frames from over one hundred and fifty exhibitors, including about twenty foreign photographers. In addition to this there were about fifty lots of lantern slides and transparencies. The programme agreed upon provided for the galleries being open from 10 A. M. until dark, and from 8 to 10 P.M.

Special exhibitions of lantern slides will be given upon Tuesdays and Thursdays, at 8 P.M., the first of these evenings being devoted to the slides received for the American Interchange from the Camera Club of London, and the others to miscellaneous exhibits. The following gentlemen had consented to serve as the Board of Judges: Messrs. John C. Browne, George W. Hewitt, James B. Sword, Xanthus Smith and Frederick B. Schell.

The Committee on Membership reported the election of the following active members: Messrs. Francis Burrows, J. Milnor Walmsley, Elmore C. Hine, M.D., and William A. Cheyney.

Mr. John C. Browne presented to the Society, on behalf of Mrs. Corlies, a framed portrait of the late Treasurer of the Society, Mr. S. Fisher Corlies, remarking in his brief address that no portrait could more thoroughly deserve a place of honor in the room of the Society. A cordial vote of thanks was tendered to Mrs. Corlies for her most acceptable gift.

Mr. Rosengarten showed some prints on a new paper known as The Buffalo New Enamel Paper. The paper was intended either for contact prints or enlargements, the exposure being by gas or lamp light, and the development similar to other gelatino-bromide paper.

Adjourned. ———

MINUTES of the stated meeting held Wednesday evening, May 1, 1889, the President, Mr. Frederic Graff, in the chair.

The Secretary reported the receipt of a circular containing the programme of the International Congress of Photography, to be held in Paris, France, during the Exposition of 1889, and inviting the attendance of members thereto.

It was also reported that a number of picture exhibits, by Mr. Frank M. Sutcliffe, at the late Exposition, had been presented by him to the Society, and a vote of thanks was passed for the same.

The Committee on Membership reported the election of the following active members: Dr. James J. Nelson, William A. Sullivan, John H. Bradway, Daniel W. Grafly, Dr. Samuel D. Risley, J. H. Hooven, Walter R. Furness, Rev. Henry A. F. Hoyt, William Howard Turner, Joseph Gray Martin.

Mr. W. E. Barrows showed some excellent cabinet portraits made by means of the Welsbach light, by Mr. Rockwood, New York.

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Dr. Charles L. Mitchell showed and described Barnett's Universal Film Carrier, adapted for using celluloid films in ordinary plate-holders.

Mr. Morris Earle showed one of the Hawk-eye Detective Cameras, fitted with a roll holder for paper negatives, and also for use with ordinary holders containing glass plates or films.

He also showed some transparencies called by the makers (Messrs. Williams & Brown) "Linotypes." They were photographic prints on linen mounted as transparencies, with washes of color applied to the back, giving them a pleasing tinted effect.

Mr. Burrows showed an improvement on the flash lamp exhibited by him at a recent meeting, in which the usual rubber tube and bulb were done away with. A spring, released at the proper moment, threw the flash powder upward and outward into the flame. This arrangement allowed the lamp to be constructed in very compact form. The lamp shown was adapted for use with ten to twelve grains of powder.

Adjourned.

ROBERT S. REDFIELD,
Secretary.

LOWELL CAMERA CLUB.

THE Lowell Camera Club held a special meeting April 16th, to consider the subject of lantern slide making, and to arrange for an exhibition of photographic work and a Club field day. There were fifty present.

It was voted to hold an exhibition of photographic work in the fall. The necessary committees were appointed for this exhibition and for the field day.

Mr. J. D. Gould read the paper on the subject for the evening. He explained the making of lantern slides for the benefit of the beginner, as well as to help the practical worker.

He showed the advantages that the reducing process has over the contact method. In regard to development he said all were agreed upon this, that there must not be the slightest trace of fog in parts to be shown upon the screen as high lights. These must be clear glass. To get this result a rather short exposure is given, and less development than would be considered correct for a negative. A little detail is sacrificed to obtain contrast.

To get clouds in slides he recommended using cloud negatives for an extra slide, removing the film on the part of the cloud slide that comes over the landscape to be shown, and then seal the two together in the ordinary way. He cautioned the beginners to be sure that both slide and cover are perfectly dry before sealing together. He suggested that it would be of great interest to other clubs in the proposed New England Exchange if one club would work the coming summer with the idea of producing a series of slides illustrating Lowell and surrounding country, showing the principal streets, the mills that have made the city what it is, and, not the least, the beautiful views that may be found all along the river's banks.

Much interest was manifested in the elaborate apparatus, made by himself, which Mr. Gould used to practically illustrate his subject. Some plates were exposed in this camera, and Mr. Charles Francis, who has had a good deal of experience in slide making, developed the plate before the Club. He used the oxalate and the hydroquinone developers, explaining the process and comparing the merits of the developers used.

Mr. W. E. Badger used his lantern to show a large number of views upon the screen from slides made by members of the Club.

Honorable Charles H. Allen furnished some very interesting slides showing the views of the Hot Springs in the National Park.

This meeting closed the series of meetings of the Club for the season. The next regular meeting will be held in November.

GEORGE A. NELSON,
Secretary.

AMERICAN INSTITUTE — PHOTOGRAPHIC SECTION.

CLINTON HALL, 19 ASTOR PLACE.

INFORMAL MEETING, APRIL 17, 1889.

Vice-President J. B. GARDNER in the chair.

The following subjects were announced for the regular meeting of the Section, May 7th: "Pictorial Composition," by J. Wells Champney; "Recollections Concerning Art in the Old World," by Professor S. J. Pardessus.

The mention of these well known artists naturally suggested and gave rise to some remarks concerning "The Inter-relation of Art and Photography."

Mr. O. G. Mason said: "I remember a time in the history of photography when there appeared to be no relation between art and photography; or, rather, when artists, as a rule, denied all relationship, and consigned the photographer to the realm of the mechanic arts. This belief, however, is now rapidly

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passing away among all those artists who have become familiar with the capabilities of photography and who find it a help in their study of art. These have learned that it requires something more than mechanical and chemical skill; and they have learned, too, that not merely artistic ability is important in accomplishing the best photographic results. Hence it can readily be accounted for why the meetings of the Photographic Section during the past two years have been so largely patronized by students of art, and why artists of acknowledged ability have been ready to contribute to our instruction and entertainment. My present belief is, that as the real and varied requirements photography imposes become familiar to those engaged in other professions, the status of the accomplished photographer will be more truly estimated and his claim as an artist more readily acknowledged."

Mr. J. B. Gardner said: "From the earliest public announcement that pictures could be made without the aid of pencil or brush to the present hour, artists have contended that photography was nothing more than a mechanical art, and that it was a misnomer to call a photographer an artist! Jarvis, in his 'Art Thoughts,' says: 'Photography is no art, but a process of science to which art may add grace and beauty. As commonly practiced, it is a chemical handicraft and not to be spoken of as art.'

"This impression appears to be very general among artists; and it is no wonder, therefore, that their names are not recorded, to any extent, among the explorers of photography. The names most prominent have been those of scientists and students of natural philosophy. During the early days of the daguerrean art, the field was occupied by a great variety of talent. The tradesman, the shoemaker, the barber, the carpenter and the clergyman, all regarded themselves equally competent to practice the art. This general ignorance of the real requirements of the business led to a development of the art that might have required a much longer time if confined to any one of the above named classes; for the chemist-photographer soon discovered that he could make more by supplying his fraternity with the needed chemicals than by making pictures. The optician had a similar experience in the making of lenses; and also the carpenter in constructing suitable apparatus. So each in turn served the other in that portion of the work in harmony with his individual aptitude, and in this way every department of the art was soon classified and rapidly developed. It was not, however, until the collodion process was successfully practiced, that artists (of any sort) were induced to join the ranks. Through their influence was soon developed a taste for photographs in colors, in ink and pastel, and also a numberless variety of fancy backgrounds and æsthetic surroundings. And so it happened, that during the whole history of the daguerreotype the professed student of high art failed to discover how a knowledge of making sun pictures could in any way help him in his work. In fact, he regarded these pictures as an obstacle to his success and a means of perverting public taste in matters of art. During these later days, however, a change has come over the spirit of his dreams, for he has learned by experience that sun pictures have constantly increased the demand for works of art and materially aided him in their production. They have widened the field of his labors, and made his name familiar to all readers of the leading and most popular illustrated monthlies of the present hour. It is safe to say, that the publishers of these journals, by calling photography to their aid, have done more to popularize art and increase the demand for artistic labor than all other influences combined. Thus the value and use of photography has been greatly increased; for it has marched hand in hand with the artist and so furnished countless illustrations attainable only by this combined force."

At the conclusion of Mr. Gardner's remarks, the question was asked whether the wet or dry plate process was the most practical in meeting the requirements of artists, engravers and publishers. This question was but briefly discussed when the Chairman announced that the usual time for closing had arrived, and, if thought advisable, this subject would be taken up at the next informal meeting, which would be held on the third Wednesday in May.

The Section then adjourned.

REGULAR MEETING, MAY 7, 1889.

President H. J. NEWTON in the chair. The Secretary stated he had received for the Section the usual literary contributions, and also a number of copies for distribution of the *Beacon*, a journal devoted to photography, published monthly in Chicago.

The usual vote of thanks was tendered for the above named, and the President called for the reports of Committees.

The Executive Committee reported that at the next regular meeting there would be a lantern exhibition of choice views taken on the three days of the centennial celebration of Washington's inauguration as President of the United States. A social meeting was also announced for the 15th of May, and a cordial invitation extended to all interested in a discussion on the merits of either wet or dry plates. The subjects and speakers of the evening were then announced, and President Newton presented to the audience Mr. J. Wells

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Champney, who occupied the first hour in discoursing on, and illustrating by means of the black-board and the stereopticon, the subject of "Pictorial Composition." Mr. Champney was listened to with marked attention, and his very clever manner of handling his subject contributed greatly to the pleasure of his auditors. As the pictures were projected from the lantern, he named by whom the negatives were made, and clearly pointed out their merits or demerits from a pictorial point of view, leaving their photographic excellence to be judged of by those skilled in the art.

The work of some of our most distinguished amateurs comprised the greatest portion of the exhibit, and, from a technical point of view, compared favorably with the productions of our leading professionals.

Without doubt it was one of the most instructive and entertaining exhibitions of the season, and was so acknowledged at the close of the meeting by a unanimous vote of thanks to each and all of its contributors.

Professor S. J. Pardessus followed Mr. Champney with a very interesting paper entitled "Recollections Concerning Art in the Old World." This paper consisted mostly of entertaining pen-and-ink sketches of noted artists and their work. It was crowded with amusing incidents, and the author related these with an ease and grace of manner only possible to the practical speaker who is thoroughly conversant with his theme.

The lesson learned by every student of photography who attentively listened to both Champney and Pardessus could not fail to be impressed with the near relationship of art to photography, and how neither could afford to ignore the other.

Mr. J. Lighttowler, who, in the absence of Mr. A. D. Fisk, volunteered his services as operator of the stereopticon, closed the evening's programme with a few excellent pictures selected from a series used by him in his professional entertainments.

A resolution was passed that the Chairman appoint a Committee of three to make suitable arrangements for the Annual Field Day excursion. In compliance with which he named Messrs. J. B. Gardner, A. H. Elliott and O. G. Mason.

On motion the Section then adjourned.

What Our Friends Would Like to Know.

N. B.—We cannot undertake to answer questions of a technical character except through the columns of the BULLETIN. *Correspondents will please remember this. No attention will be paid to anonymous communications.*

Q.—E. H. writes: Why will not hydroquinon developer answer for contact bromide prints? I have tried it and apparently the result is the same as the ferrous oxalate process. I say "apparently the same," as I am not experienced enough to judge as to whether or not I am losing some artistic effects. I cannot find a word about the matter in any of the books. How about permanency, liability to stain, length of time for washing, etc.? Please tell me fully on the question. I inclose a print treated with hydroquinone, and you will do me a great favor to criticise this print, negative, etc. I make bold to ask all this, as local photographers are a little cautious about giving points, and I have several friends watching my progress in order to make their decisions as to cameras, etc., for a summer campaign. Particulars: 4 x 5 Anthony Detective Camera. 1. Dallmeyer Lens. Stop marked 10. 2. Distance about 10 feet. 3. Time, 2.30 P.M. Bright sunlight. 4. Plate, Cramer No. 80. 5. Plate and print developed with hydroquinone according to the Stanley formula. 6. Subject, child in a swing. Queries: 1. Is the plate developed enough? 2. What causes the dark corners and light central spot on the ground? These dark spots on some negatives run up the entire side and ends, reducing the size of picture very much. I inclose a second print, a street scene. Large stop, slow shutter, Stanley Plate 25. Please to "go for" that also. I saw some prints a few days since which had the same gloss as bromides but were blue, and also some a grass green. What was the paper and do you sell it—price, etc.?

A.—Hydroquinone can be used for bromide prints very well indeed, and notes to this effect have appeared from time to time in the BULLETIN. You will probably get a much finer gradation of lights and shadow with hydroquinone than you do with oxalate; therefore the artistic effects will be superior. The prints will be just as permanent, but may require a little longer washing. The print you send is quite good, but appears to be from a negative a little out of focus. Use a focusing glass upon the ground glass and not too large a stop. In a good light the lens may be stopped down one-half to ordinary instantaneous work. The plate appears to be well developed, but we could not judge of this well without seeing the negative. The dark markings are due to a slight fogging which appears on all very rapid plates when they get old; the emulsions are always carried too near the fogging point. The second print is very good, except a dirty bluish spot in the center, which is possibly due to imperfect fixing. The focus in the latter case is much better than that in the first print.

Q.—C. A. B. writes:—I wish to ask for a little information concerning the

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hydroquinone developer. I make my own developers and have tried nearly every formula which has appeared in the BULLETIN, but my experience has been that they all require a longer exposure than with pyro. Will it work as quickly as pyro if made properly? Is there any way to keep it clear? What effect will dampness have on sensitized albumen paper?

A.—Hydroquinone works much slower than pyrogallol, and herein is its advantage. You have a greater command over the progress of the development. It does not require longer exposure, but the development goes on much more uniformly and slowly. The various formulas given containing sodium sulphite should keep clear; but you may use about 30 grains of meta-bisulphite of potash in 16 ounces of developer and get a much better result for keeping clear. An ordinary amount of dampness, and when not for too long a time, does no special harm to sensitized albumen paper. But if the paper becomes mildewed it will be ruined.

Q.—R. S. B. writes: Give me, or direct me where I can find, directions for making the easiest and safest cold emulsion for a good, dense, moderate landscape plate?

A.—See the articles on Emulsions by Professor S. B. Newbury, in the BULLETIN for 1886, pages 196, 232 and 746.

Q.—C. St. J. McK. writes: I take the liberty of asking you some questions which you would greatly oblige me by answering in the next issue of the BULLETIN. Would a wooden tray, thickly coated with black asphaltum varnish, answer for a silvering bath? Would one lined with plaster of Paris answer the same purpose? Lately I have been trying some experiments with trays built up of glass (sides and ends cemented to a sheet), but can't find a cement that will hold the glass together and be acid proof. Can you give me a receipt or recommend such a cement? Have tried stratina, but acetic acid cuts it.

A.—We would not recommend asphaltum varnish for a silver bath. It is better to coat the bath with melted paraffine wax, applied hot to the bath, which should also be thoroughly dry and hot. This latter method is very effective. Plaster of Paris would get soft unless also coated with paraffine as above. We know of no good cement for this purpose.

Q.—F. C. writes: Can you give me any information for making gelatine plate for use on printing presses—a process whereby portraits, buildings, etc., can be made by the "gelatine process" to print directly from the gelatine plate? Perhaps you can give me some information.

A.—We do not know the details of any such process, and in every case such processes are covered by patents.

Q.—J. M. writes: Will you please tell me what makes my prints crack when they are burnished? They look as though they have been crushed and then straightened out again.

A.—You probably let the prints get too dry before you burnish them.

Q.—C. H. H. writes: Will you answer the following: The cause of these yellow streaks over the paper after sensitizing. The paper is not scorched while drying, which I have proven. The cause of measly prints after floating two minutes on a 50-grain bath neutral fumed twenty to thirty minutes, paper well dried before placing on the negative. Also the cause of silver not coming out in wash water, rain water at that, and use a drachm of acetic acid until they become slightly red?

A.—The streaks are due to scum on the silvering bath. Draw a strip of clean blotting paper over the surface of the bath before floating paper. Measly prints are probably the result of using the paper too dry. Keeping in a damp room over night is a good plan. If you use rain water that is clean it will become only slightly milky when you wash the prints. It is impure water that precipitates the silver.

Q.—R. M. H. writes: Please give me, through the columns of the next BULLETIN, what you consider the best formula for silver and toning baths. I use Three Crown paper. My prints look pale. My negatives are good usually.

A.—Use a 45-grain bath of silver nitrate. Fume the paper twenty to thirty minutes, and tone in a gold bath containing 2 grains of gold chloride in 8 ounces of water, with 10 grains of salt and enough sodium bicarbonate to make it turn red litmus paper decidedly blue. Print deeply until shadows are obscured. They tone much lighter than you print them.

Views Caught with the Drop Shutter.

THEO. C. MARCEAU, the well known photographer of Cincinnati, O., and Indianapolis, Ind., called upon us a few days ago, previous to his departure for an extended tour through Europe and the Orient. Mr. Marceau intends traveling abroad about seven months, taking in the principal cities of interest. He is one of the youngest and most successful

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photographers in this country, and his many friends wish him *bon voyage.*

THE amateur photographer must have the best camera that can be made, and it is largely owing to their pressure that American manufacturers have awakened to the fact that they must turn out a camera in finish and design inferior to none. As a result they are now combining the advantages of the English cameras with the good points of the American make, and the result is something better at each effort.

The English cameras were needlessly bulky and heavy, but a great good point in their favor is the front focus advantage. That is, the front part of the camera slides back and forth on the bed instead of back and forth on the ground-glass end. It is thus easy to handle, and the ground-glass end being stationary, the operator does not have to move his head back and forth constantly. It is worked by means of a rack and pinion movement. An excellent example of the combination of the advantages of the two cameras is seen in the Phantom camera. This has the reversible movement of Novelette style, with the English advantage.—*New York Times.*

PHOTOGRAPHING AT NIGHT.—In response to invitations a large number of our citizens gathered at Davis' gallery last evening to witness practical demonstrations of making photographic sittings at night, by what is generally known as "the flash-light process"—something comparatively new to our public. After a few brief preliminary remarks regarding the rapid progress of photography, Mr. Davis proceeded to make a number of "sittings," and to the amazement and wonder of the spectators, negatives were made in the *thirtieth part of a second*, and as they were developed immediately and passed around for examination they were shown to possess the finest technical qualities of the best day-light work. The demonstrations over, Mr. Davis explained to his audience how available this process was for photographing all manner of evening gatherings, and that for usual portrait work his gallery would be open for sittings every night until 10 o'clock.—*Charleston Daily Star* (W. Va.).

EDSALL'S IMPROVEMENTS.—Among the many improvements to be made in the near future on our noted "125th street," are those of Edsall, the photographer, who has secured a long lease of the building adjoining the one he now occupies at 248 West 125th street, to which another story will be added and joined to his present atelier, and when completed will be one of the largest and most perfect in the city, having a direct north light, indispensable to the production of fine photographic effects. Mr. Edsall is considered one of the leading photographers of the city. His work is noted for its artistic effect and finish. No agents are employed to sell tickets, and there is no club work made at his establishment, he claiming that more satisfaction is given and better work obtained when parties deal direct with the gallery. The fact of Mr. Edsall's enlarging his establishment proves his success, and when his improvements are made up-town, residents can say that they have as fine a gallery in Harlem as there is in the city.

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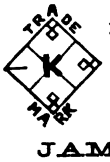
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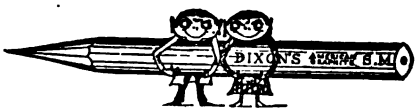
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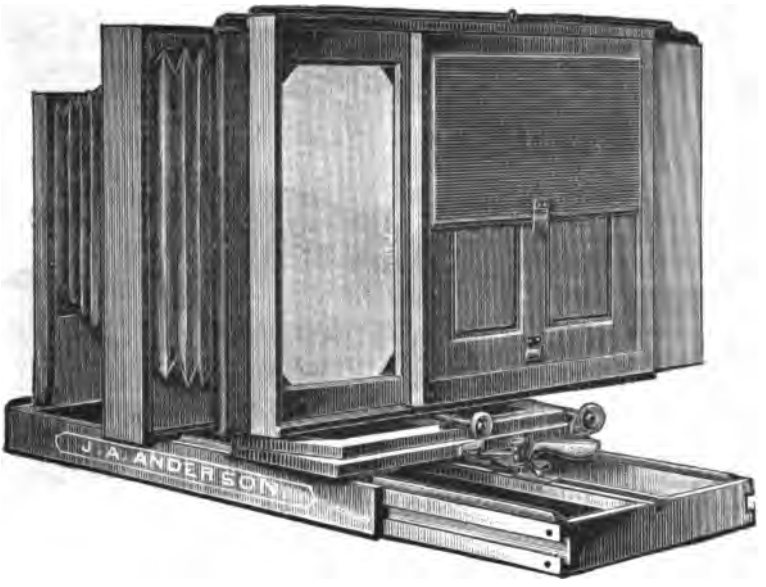
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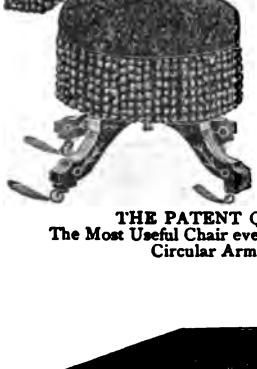
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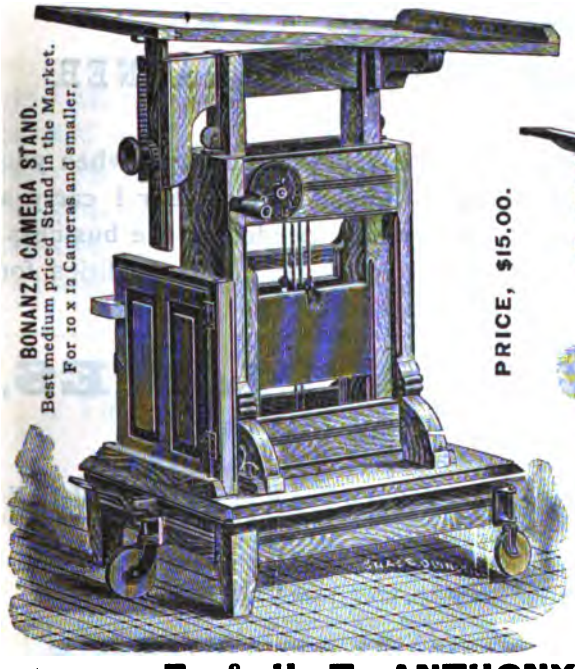
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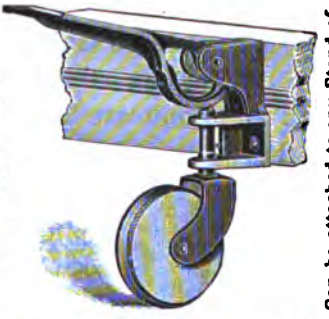
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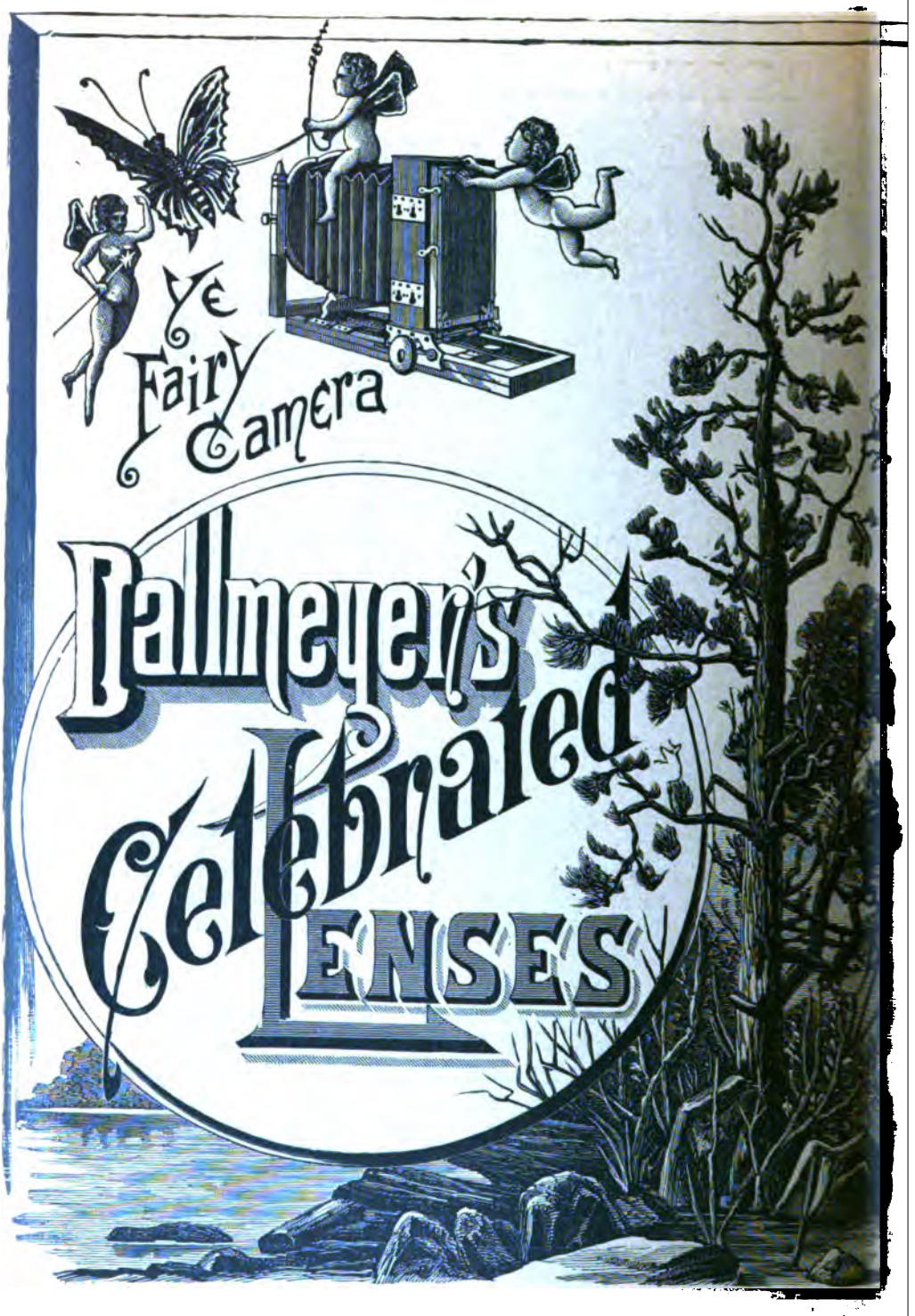
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Vol. 20. June 8, 1889. No. 11.

ANTHONY'S Photographic BULLETIN





Edited by
PROF. CHAS. F. CHANDLER, Ph.D. LL.D.
Prof. of Applied Chemistry in the School of Mines,
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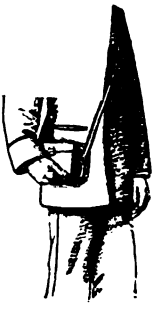
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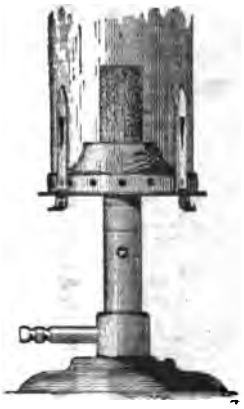
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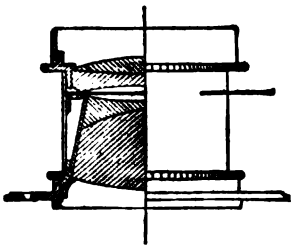
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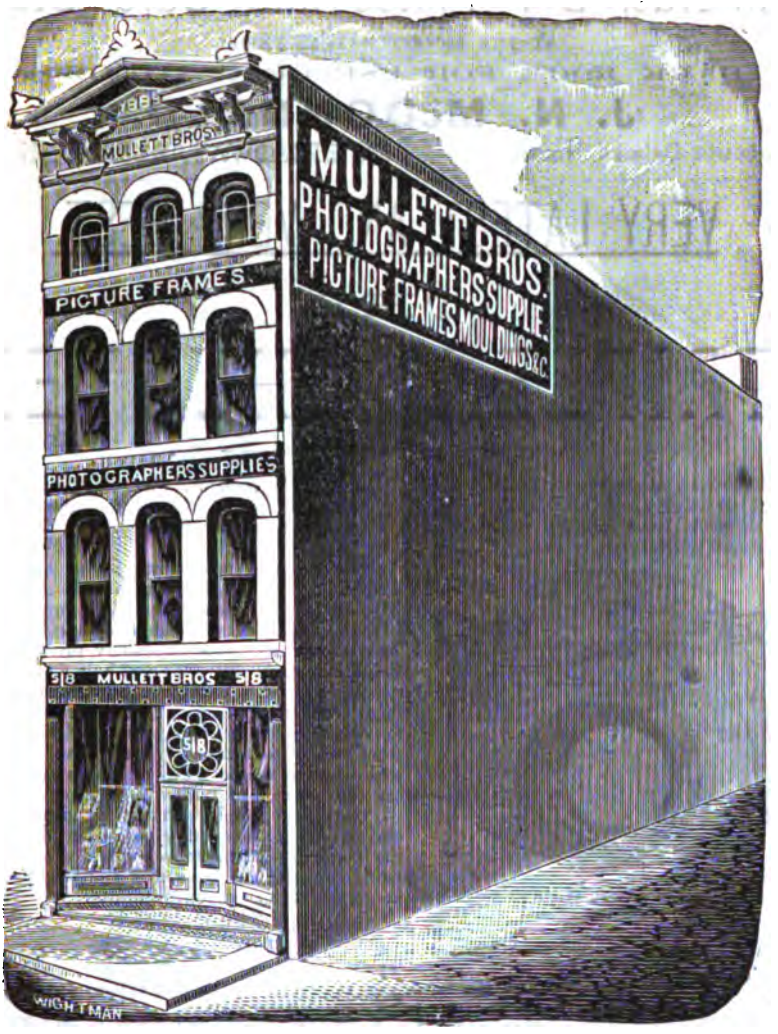
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THE Triplex Shutter is so named because it has triple movements. Will make exposures in three ways, viz.: Quick instantaneous up to $\frac{1}{100}$ of second; Slow instantaneous from $\frac{1}{2}$ to $\frac{1}{50}$ of second, and rapidity regulated at very instant of making exposure; and Time, which is silent and self-setting.



§ Size, No. oo Shutter, weighs 4 ounces.

The exposing mechanism is the same in the Triplex as in the Duplex (the shutter which has for three years stood in popular favor head and shoulders above all competitors), viz.: Two slides or leaves oppositely pivoted which swing past each other, stopped half way for time exposures; but a complete continuous movement for instantaneous. By this method there is no vibration created, and great speed is obtained, from two to four times quicker than is possible with shutters whose slides or leaves *recede* from center to open, and *return* to close.

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SIZES AND PRICES:

Numbers,	00	0	0A	1	1A	2	2A	3	3A	4	5
Openings, in.,	$\frac{5}{8}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{3}{8}$	$1\frac{5}{8}$	$1\frac{7}{8}$	$1\frac{5}{8}$	2	$2\frac{1}{4}$	$2\frac{1}{4}$
Prices,	$11.50	$12.00	$12.50	$13.00	$13.50	$14.00	$14.50	$16.00	$18.00	$20.00	$22.00

Rotary Stops up to No. 1, $1.50; above that, $2.00. We do not make Rotary Stops for sizes larger than No. 2A.

When flange collars are required, as on Ross and other lenses similarly mounted, 50 cents extra. Shutters can be furnished for most standard lenses, fitted ready for use; but it is to customer's interest to forward his lens tube with order, otherwise perfect fit is not guaranteed.

This Triplex shutter is also made for Stereoscopic work, also for use in Detective boxes.

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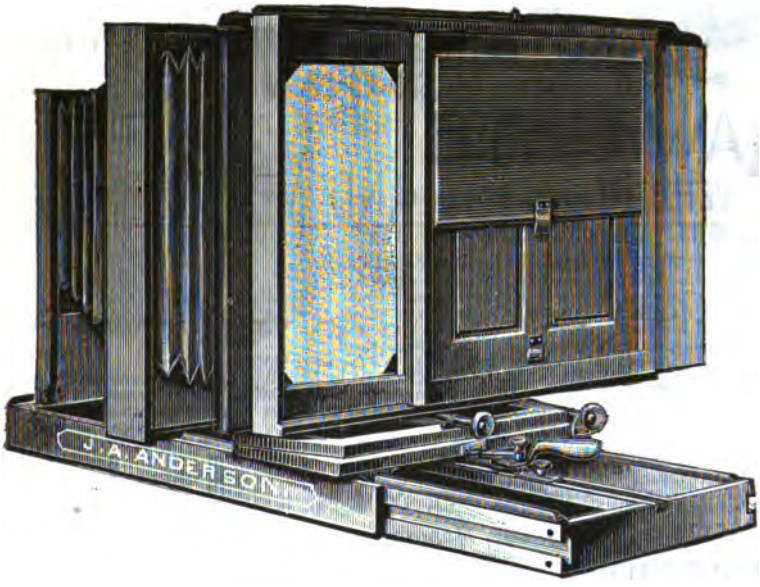
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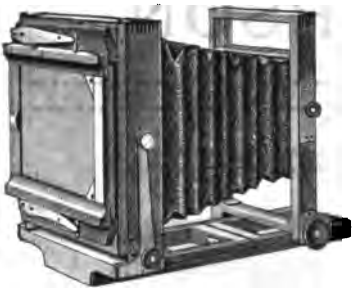


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6½ x 8½	" "	. . . .	30. Backs.)
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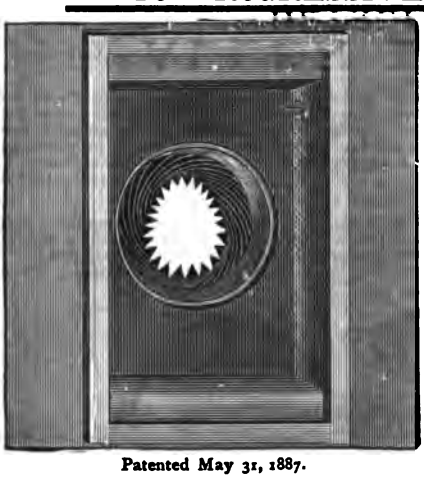
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Every one guaranteed. Price, each, $8. Sample photographs made with it sent on application.

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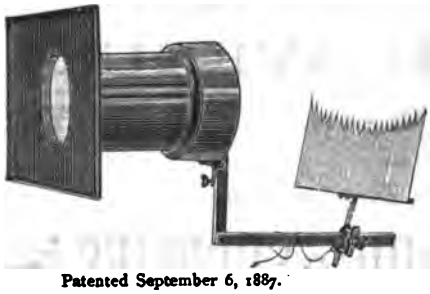
Paper dried with it lays perfectly flat, and therefore better prints can be obtained.

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In addition, it is very desirable for handling Bromide Paper.

PRICE.

18 x 22 size, each, - -	$1 50
20 x 24 " " - -	1 75



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HAMILTON, O., October 12, 1888.

ALLEN BROTHERS, Detroit, Mich.:

DEAR SIRS,—I have for the past three years used a THREE B SUTER Lens for out-door work, and FIVE A for interior work, and, so far as work is concerned, I would not exchange a Suter Lens for any other kind, regardless of price.

Very respectfully, (Signed) I. M. BRANDTEL.

CIRCLEVILLE, O., October 5, 1888.

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GENTLEMEN,—The No. 6 B SUTER LENS which we ordered of you about one year ago has proved worthy of all the praise we can give it. We have made cabinets of babies in one-quarter of a second, and 14 x 17-groups in from twelve to sixteen seconds—well stopped down, all clear and crisp—as good, we think, as any lens in use, if not better; and for out-door viewing and grouping it is A No. 1. The more you can sell the more good you will do for photography. We expect to order a C Lens in a few days.

Yours, etc., (Signed) REED & BOCK.

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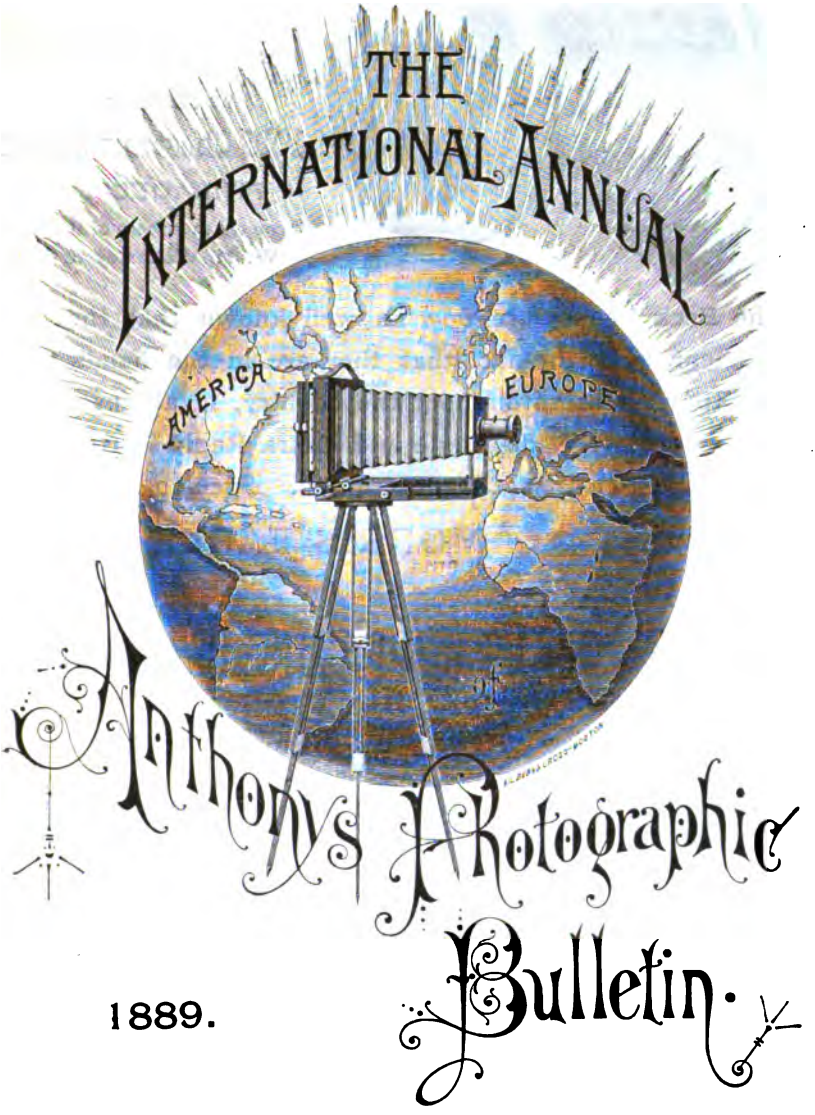
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The apparatus is held in and operated by the same hand, and requires no other support, and the light may be projected in any direction, and at any angle of elevation.

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CAUTION.—The so-called "flash-powders" should never be used in this or any other form of lamp, but only pure magnesium.

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This paper we now introduce to the trade under the name of Improved Reliable Bromide Paper, feeling assured it meets the requirement for an absolutely reliable article.

This paper we are obliged to sell at a rather higher price than the paper we have hitherto made; but as it will be of superior quality, and also has our guarantee, it will be well worth the difference to the purchaser.

The Improved Reliable Bromide Paper will be made both in quick (manilla color wrappers) for use with Cooper Enlarging Lantern, and in slow (blue wrappers) for day-light.

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CUT SHEETS.

SIZE.	PER DOZ.	SIZE.	PER DOZ.
3¼ x 4¼	$0.25	12 x 14	$3 co
4 x 5	40	12 x 15	3 35
4¼ x 5½	50	14 x 17	4 50
4½ x 6½	55	16 x 20	6 00
4¾ x 6½	60	17 x 20	6 40
5 x 7	65	18 x 22	7 50
5 x 7½	70	20 x 24	9 00
5 x 8	75	22 x 27	11 25
6½ x 8½	1 00	24 x 30	13 50
8 x 10	1 50	25 x 30	14 00
10 x 12	2 25	24 x 36	16 80
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10 inches wide	$0 56	20 inches wide	$1 12
11 "	62	22 "	1 24
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18 "	1 00	31 "	1 74

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33 inches wide	$1 85	37 inches wide	$2 10
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These sizes are larger than anything that has ever before been attempted. ANTHONY'S PATENT RELIABLE PAPER is coated by the most perfect and the largest machinery ever designed for the purpose, and is warranted uniform in quality and capable of producing the most beautiful results photographically.

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WE DO NOT MAKE ENLARGEMENTS FOR THE TRADE.

NOTICE.—Our Bromide Paper is made under U. S. Letters Patent to T. C. Roche, dated February 8, 1881, No. 241,070. We have commenced a test suit in the United States Circuit Court for the Southern District of New York, against the Eastman Dry Plate and Film Cot, George Eastman, Treasurer, and the Scovill Mfg. Co., in which we claim that the paper manufactured by the Eastman Co. is an infringement of our patent, and the Scovill Mfg. Co. are sued as sellers of it. This suit we shall press as vigorously as possible. In the meantime we deem it our duty to ourselves and to the trade to caution all persons against infringing our patent, as dealers are liable equally with the manufacturers for both damages and profits.

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"PORTRAIT LENS.—The 'Optimus' Lenses are MODERATE in PRICE, and yield most excellent results.—*Amateur Photographer.*

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5 x 4	7 x 5	9 x 7	10 x 8
63|-	94|6	126|-	220|-

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¼	½	1	2½	4½	5½	6½
39|-	52|6	82|6	127|6	142|6	180|-	225|-

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$150 Cup.



P. A. of A. BOSTON, 1889.

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The conditions of the competition will be as follows:

First—The prints shall not be less than six in number, and may be of any size.

Second—The prints shall not be framed, and shall be untouched, except ordinary spotting.

Third—The prints may be either contacts or enlargements.

Fourth—The award will be made for the collection showing the most skill and judgment in the manipulation of the paper.

We cannot assume the charge of any exhibits competing for above prize, such exhibits being subject to the regular Association rules. Applications for space must be made to the Secretary, Mr. O. P. SCOTT, Chicago, Ill.

Notice only of intention to compete to be sent us before August 1st.

THE EASTMAN DRY PLATE AND FILM CO.,

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ANTHONY'S
Photographic Bulletin.

Prof. CHARLES F. CHANDLER, Ph.D., LL.D., *Editor.*
ARTHUR H. ELLIOTT, Ph.D., F.C.S., *Associate Editor.*

JUNE 8, 1889. Vol. XX.—No. 11.

THE SEMI-CENTENNIAL OF PHOTOGRAPHY.

THERE is no doubt that the coming meeting of the Photographers' Association of America, to be held in Boston in August next, will be an event to be remembered by all who have the good fortune to participate in it. We hear from all sides that large numbers of photographers are preparing to exhibit and that there will be a very animated competition for the prizes.

Our readers must not forget the date of the meeting—August 6th to 9th inclusive. There is no time to lose in the matter of preparing exhibits. Time passes very rapidly during these bright, busy days, and every moment should be utilized in making ready for the competition. It should also be remembered that this competition is open to all; that every photographer has a chance to obtain some reward for his efforts to excel in the art. It is very foolish to think that because you may be only able to show small work that therefore it is not worth while to compete. Every earnest effort to excel is bound to have its reward, for if a prize is not won, the effort itself must necessarily make you better.

We are sure that the Executive Committee of the Association will manage everything so as to secure the greatest amount of benefit to all the members. It is well to remember that these meetings are a combination of social as well as intellectual reunion, and every effort should be made to keep this in mind in arranging the programme. We still think that the advice we have given on former occasions, to have the meetings for the reading and discussion of papers in the evening, is worth trying; and we understand that this idea will be carried out at Boston. By this means we shall have the opportunity for members to discuss papers and practical subjects without being annoyed by those whose inclinations tend to merely viewing the pictures and apparatus, and who simply walk in and out of the meeting-room without any regard to the subject in hand. These latter should be given every opportunity to gratify their wishes; but it should also be remembered that others like to listen to the discussion of topics of interest in the art without having the annoyance of hearing a pair of squeaking shoes drown part of an interesting sentence from a speaker. Every member has a right to do whatever pleases him, provided he does not infringe the same right in his fellow members.

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We sincerely hope that some effort will be made to have an historical collection of both apparatus and pictures of the early days of photography, and we think a special committee should have charge of this part of the exhibition. It will be extremely interesting to see the apparatus and work of the early workers in the art, and we feel thoroughly satisfied that such a collection would be greatly appreciated by the members.

It would be also very interesting if one evening could be devoted to historical reminiscences by some of the veterans of the art. These men cannot always be with us, and it would prove not only entertaining but profitable to the younger members of the Association to hear of the rise and progress of photography from the lips of those who have taken an active part in its development.

Another point that should never be forgotten is that these annual meetings are to many of the members vacation times, and they like to have the opportunity of meeting their fellow-members and making excursions with them. It is, therefore, important that an opportunity should be given for a grand excursion and good time. We believe that such a step is contemplated; but unfortunately the day after the closing of the exhibition is the time set down for it. We think this is a great mistake, for our good friends in the manufacturers' departments will then be forced to forego the pleasure of the excursion in order to repack their goods before returning home. We think the afternoon of Thursday would be a better time, and close the exhibition on Saturday at noon instead of Friday afternoon, as proposed.

We call attention to the letters of *President* McMichael, *Vice-President* Hastings and *Secretary* Scott on other pages of the BULLETIN, and urge all our readers to make an effort to go to Boston in August next. Go, and take some active part in the meeting, and you will never regret the time so spent.

EDITORIAL NOTES.

THERE will be an International Congress of photographers held in Paris during the progress of the Exposition. During the Congress it is proposed to consider the following questions:

1. The introduction of a fixed unit of light in photography.
2. Uniformity in measuring the focal length of lenses.
3. Uniformity in indicating the photometric effect of lens diaphragms.
4. Uniformity in the mode of measuring the time of admission of light by shutters.
5. Uniform and easy adapters for different lenses on various cameras.
6. Uniformity in the dimensions of plates.
7. Unity in the expression of photographic formulas.
8. Unity in naming photographic processes.
9. Custom-house formalities for the circulation of sensitive preparations.
10. Protection of artistic rights in photographic work.

The above questions are those proposed by the Committee of Organization of the Congress. But other questions will be considered, if sent to the Secretary, S. Pector, 9 Rue Lincoln, Paris, fifteen days before the opening of the Congress, which convenes from August 6th to 17th next. Two additional questions have

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already been proposed—uniformity in estimating luminous intensity in photographic operations, and unity in the method of determining the sensitiveness of photographic preparations. If some reasonable agreement can be obtained in the discussion of these questions we shall be exceedingly glad, and photography will be greatly assisted in its advancement.

THE American authors who visited Washington during the discussion of the question of International Copyright in March, 1888, and were received at the White House, have just presented Mrs. Cleveland with a handsome album, as a souvenir of their visit. The leaves are of parchment in a fine binding, and each author has written his autograph, together with a short piece of prose or verse. The collection was made by Dr. Edward Eggleston, of the American Copyright League.

THE Society of Amateur Photographers of New York gave a very handsome lantern exhibition in Chickering Hall on May 28th, in aid of the Memorial Arch fund. The opening address was made by the Reverend Robert Collyer, and Mr. J. Wells Champney described the pictures as they were projected on the screen. The display consisted of the instantaneous views caught, mostly by the detective camera, during the three days of celebration of the Centennial in New York City. It was a very wonderful exhibition of the skill of modern amateurs, and also of the marvelous perfection of modern photographic apparatus and dry plates. It is out of the question to give in words any idea of these pictures, and we hope that the Society will make arrangements to circulate the collection around the country, when we advise our readers not to lose the opportunity to see them.

FOLLOWING the example of Boston Camera Club, the St. Louis amateurs are hard at work with a view to preparing a set of lantern slides illustrating their city. The set will be called "Pictorial St. Louis," and will be from negatives made by the members of the St. Louis Camera Club. Father Charropin, of the St. Louis University, has consented to make the slides, by request, in order to secure uniformity.

We know of no better work than these slides illustrating the various cities of the Union, that amateur photographers can undertake. It not only gives them an object in working, but enables strangers to appreciate places that are often known to them only by name.

THE Excursion Committee of the Photographic Department of the Brooklyn Institute have arranged for the following excursions: June 8th, Flatbush; material—old Dutch houses. June 22, Irvington-on-Hudson; material—Irving's home, Church at Sleepy Hollow, Irving's grave, etc. July 6th, Bay Ridge and Fort Hamilton; material—shore and harbor views, Forts Lafayette and Hamilton. July 20th, Harlem River; material—river views, bridges, Fort George, etc.

MR. S. R. STODDARD, of Glens Falls, sends us a picture of the arch at the foot of Fifth avenue, New York, taken Wednesday evening, May 1st, by the magnesium flash-light. This is the first picture of the kind that has come to our notice, and is remarkably good when we remember the size of the object and the conditions. It is certainly interesting as an experimental effort. There is

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considerable detail in the lighter portions of the arch, but the people grouped around are not so good, although in these cases there is much good definition in the faces.

[*By our Special Correspondent.*]

ENGLISH NOTES.

After a long (though not severe) winter and a late spring, vegetation has "come with a rush," owing to the warm rain and sun of the latter part of April, and we are landed at once into the "photographic season," with all its capabilities.

For future years it may be as well to make a note, not to let slip the few precious days when the leaves are small. This is the time—early spring—when country buildings, churches, castles, farm-houses and the like are most advantageously photographed. The trees are just sufficiently clothed not to look bare, and yet they do not hide architectural details with the mass of greenery which they assume later on.

Of course there has been a great rummaging out of cameras, etc., and cleaning of dark rooms. The amateur has awakened, and you meet him on the war-path by the hundred every Saturday afternoon; while the desire to develop and print from his negatives accounts for the thinning of the congregations in our churches on Sundays. And the heart of the professional rejoiceth in the sunshine. He replenisheth his show-case and hangeth it up cheerily; the canvasser goeth forth into the highways and byeways, while the trusty "doorsman" striveth with renewed vigor to inveigle the passers-by to "come and be photographed by our new instantaneous process!"

And so the photographic world is alive again, and we wonder how many plates will be exposed between April 1st (ominous date!) and September 31st; between which dates I reckon the ordinary "photographic season" in these islands to extend, although the first of May will this year (owing to the late spring) be nearer the mark for the general crowd.

I lately paid a visit to what is perhaps now the most extensive dry plate manufactory in England—that of R. W. Thomas & Co., at Thornton Heath, near London. Gradually the "small" dry plate works have died or are dying out, or are being "absorbed," and the trade in England now lies practically in the hands of half a dozen firms. By recent alterations at Messrs. Thomas' the works have been made capable of coating five thousand dozen quarter-plates per day. All the emulsion is made or rather purified by means of a separator, which is a silver cylinder, into which the cooked emulsion is placed, and which is then caused to rotate at a tremendous speed. By centrifugal force the molecules of silver bromide are forced outward to the sides of the silver cylinder, to which they adhere; while the liquid, partly decomposed gelatine, is left in the middle. The latter is then poured off, and the silver bromide scraped off the sides and incorporated in fresh gelatine, being then ready to be used for coating the glass plates.

Messrs. Thomas' able manager, Mr. J. T. Sandell, has recently patented a new system of plate packing, which is now on its trial. Being sensible that atmospheric air is the chief cause of the "going bad" of ordinary gelatine dry plates when they are kept for a year or more, Mr. Sandell places his plates in pairs, film to film, and prevents all chance of side movement by the pressure of corrugated paper.

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In my own work I now very largely use plates with ground glass backs. The ground glass prevents halation to a great extent, and it is very convenient, for working on with brush and pencil to secure broad effects.

I see that Messrs. Anthony have lately published an American edition of Mr. Jerome Harrison's new text-book for beginners. Although this work has been published so short a time, it has had and is having a very large sale in this country.

Everybody is, of course, going to Paris this summer; and it appears that "everybody" has resolved to take a detective camera with him. The Eiffel Tower will, I imagine, have to be taken "in sections," in the same way as the California pine, to look to the top of which required "two men and a boy, the one to begin where the other left off." But the existence of the detective camera is dawning upon even the average official (and French officials are somewhat short of temper), and as the right of photographing within the exhibition and its grounds has to be "paid for," I should advise our detective friends to be careful; for any average idiot could tell what most of them are up to as they fumble over their "adjustments," and peer into their finders.

The number of photographic societies continues to increase steadily and rapidly, and for the British Isles now amounts to about 110. The ingenuity of the editors of our photographic periodicals is taxed to find space for the accounts of the meetings of these societies, while it is impossible to insert half the papers which are read. To remedy this state of things a special periodical named "The Photographic Societies Reporter" (monthly, price fourpence) has been originated in connection with the "Amateur Photographer." The editors are Messrs. Lyonel Clark and Hastings, and it is published by Hazell, Watson & Viney, of 52 Long Acre, London. The first number is for January of the current year.

In the ordinary method of intensification by means of bichloride of mercury followed by ammonia, one of the "troubles" is the thorough washing required after bleaching with the mercury. This may be shortened by well rinsing the negative, and then soaking it for five minutes in a weak solution (1 ounce to the pint) of ammonium chloride. After this a wash of ten minutes in running water will be sufficient.

The principle of applying the mountant to the card (which is then dried and sold ready for use) is now also applied to albums. It is in that case only necessary to damp the photograph and press it down upon the paper. But all these "time-saving" processes have their drawbacks, and without more experience I should be inclined to fear that the pages of the album might "stick" in damp countries and in damp weather. The mountant also imparts a somewhat spotty gloss to the surface.

The results of recent exhibitions go to show that the man who wants the medals must aim at two things. In the first place his work must be "large and black." Although there are notable exceptions, yet it is none the less true that pictures of less than whole-plate size ($8\frac{1}{2}$ x $6\frac{1}{2}$ inches) look insignificant on the walls of an exhibition. And he should print in platinotype, for that is the way to get "artistic-looking" results. In the second place, and mainly, a picture, to get a prize nowadays, should possess something more than perfect manipulation. The unconventional is greatly sought after, and such subjects as a group of rearing horses, or Gipsies straggling over a wild moorland, are placed before the

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most perfect representations of the famous buildings and landscapes which have been "photographed to death" during the last half century. I note, too, that sharpness of focus is not greatly admired; indeed the best judges prefer the "diffusion of focus" principle, and the lenses made by Dallmeyer, which admit of this (by unscrewing the back combination a turn or two), are much sought after. The new rectilinear landscape lens of the same maker is frankly recommended by Dr. Emerson in his new book, "Naturalistic Photography," and in a private letter I see the Doctor recommends the use of a lens *one size larger than the plate*—that is, we should employ a 10 x 8 lens when carrying a whole-plate camera, and so on. The greater length of focus thereby secured greatly improves the perspective of the picture; or rather, the relation between near and distant objects.

New patterns in detective cameras continue to come out daily. The last I have seen is a cheap German instrument which contains a piece of sponge. It is intended that this should be dipped in ammonia, the fumes of which, falling upon the plate or paper during its exposure, would (it is supposed by the inventor) render the film more sensitive. But as a means for the production of "fog" the plan appears unrivaled to TALBOT ARCHER.

INSTANTANEOUS MARINE PICTURES.

BY W. P. RIDGE.

OF the thousands of instantaneous views made in our harbor, how many of them are worthy of the name of picture! Single vessels, broad side on, going at the alleged speed of 20 miles, are certainly interesting as photographic feats or as portraits, but they are usually very far from being pleasant compositions. Spring is here, and with it pleasant days for snap-shutter work. Too many men are already discouraged at the want of picturesque effect with instantaneous marine work. Some have tried the experiment of a tug at $50 per day and have not been satisfied with the result.

This article is for the purpose of suggesting a better way. In general, marine compositions are not to be had by going for them. They will, however, come to us if we know where to wait for them. There are two places on the west side of New York City where for an hour or two every morning pictures are made almost every minute. At the foot of West 23d street, at 9 o'clock in the morning, one can, two mornings out of three, find the following combinations: One of the Iron steamboats backing out of her pier; another boat of the same line crossing astern to come into the dock, while the bow of the day boat for Albany (the "New York" or the "Albany") can be brought into one side of the picture. Usually there are many other boats in the field of view. Lighters, tug-boats and barges are usually in the field of view.

Wait a minute or two after nine, and the day boat will be swinging out and be foreshortened in the center of the picture, while the other boats have changed places. If the tide is right, a ferry boat will also come into this marine spectacle.

The ends of the Erie ferry piers are two good positions. The Iron Steamboat dock also affords a fine location. The Albany day boat dock and also the dock above might give good pictures. But the amateur who wishes to get the picture must be on the spot for one or two mornings, and must be ready for work

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at least ten minutes before nine and should not leave till at least fifteen minutes after. During this twenty or twenty-five minutes there may be a dozen opportunities if the morning is a favorable one.

Another rich field is found at the foot of Franklin street. At this place the Dock Department is filling in, and there are no end of quaint combinations of carts and Italians for foregrounds, while steamers are coming and going just outside. This has been a particularly interesting spot because the work was constantly altering the locality itself. In six months the whole spot will be changed; the pavement down, and sheds cut off all the value of the place for the photographer. For months past strange crafts of all kinds were to be found around the temporary wharves of this basin. The best time is from 8 to 10 A.M. It is in its prime about nine in the morning. With a good lens this spot has the advantage of furnishing a fine and interesting foreground for any distant object that might be within reach. Many of the derricks make fine pictures by themselves when a good foreground is selected.

In general, where the Dock Department are at work building new piers there are good things to be had with the hand camera. In all cases, however, due regard must be had to the time of day. On the East River the afternoon is the most promising on general principles. On the North River there is little to be had after 11 o'clock. The sun is then so high and so far south that, as a rule, the best efforts are lost.

The beginners ought to keep in mind the fact that broadside views of steamers and sailing vessels are not as satisfactory as others. Ships, barks and other "square rigged" vessels are each year becoming less common. Each picture of their decks and spars, with all the queer, intricate and interesting tracery of rigging which they present, becomes historically more and more valuable as time passes. Such pictures are rare, yet at the present time they are by no means difficult to obtain. There are usually square-rigged vessels lying just below the Pavonia ferry on the Jersey side. The California clipper ships come into the East River and unload and load at the docks next to the Grand Street ferry houses, on the south. There are also many square-rigged vessels at the pier next but one below the Brooklyn Bridge. At the dry docks, five or six blocks above the Bridge, there are usually collections of vessels which give good opportunities to the hand camera.

On the East River the morning is a bad time, because the sun is rather too much on the river side and because of the haze and smoke from the city. The camera may, therefore, go to Jersey or the North River in the morning, where the air is clear and the light comes from the best direction, and take the East River for the afternoon. Ropes and rigging and ships' hulls are rather dark as a rule, and it is best to have them well lighted if a short exposure is desired.

On the East River a ship's bowsprit may often be found reaching half-way across South street, the vessel herself lying with her bow almost against the dock. A view looking north (away from the sun), bringing in this spar, with its ropes and chains, and taking in a portion of the ship itself, can often be found which will be a picture worthy of a painter. Such a scene, with the busy street, a glimpse of the Bridge, and the quaint intrusion of the vessel, makes a view of which no photographer need be ashamed even among artists.

Rather short focus lenses are best for this work. A wide angle which will cover a 5 x 6 plate is just the thing so far as covering power is required. Great

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speed of shutter is not needed. A common drop, without a band or spring to hasten it, will answer very well. At the present time there are at least three points below Fulton street on South street where such compositions can be found. On the ends of the piers nice groups are constantly to be found. They are very effective on account of the background of the vessels and the picturesque foregrounds.

There are a great many photographs shown which are classed as marines which are merely groups, with a steering wheel or a cabin door for a background. A boat or a vessel is suggested, but the group is horribly aggressive and there is no foreground to speak of. There is a marine flavor to the subject, and that's all. As a rule, these subjects are not worth a plate.

Sloops, schooners, catboats and lighters do not, as a rule, have detail enough to make good pictures alone. To utilize them a number must be caught at once. For this the dock at Washington Market affords fine opportunities. For canal boats, go down to the canal boat basin, just east of the Battery. It used to be at Coenties slip. The place was formerly accessible on both sides, so that good effects might be obtained in both morning and afternoon. On the days when the tows are made up for Albany there are many fine groupings of boats and tugs. From 1 o'clock onward will give the best results. Along toward dusk the tows are completed, and the great paddle-wheel boats pull the long lines of boats around the Battery and up the river. Unfortunately, we do not know on what days of the week the tows are made up.

When the Wilson or Atlas line steamers are loading at the foot of 24th, 25th and 26th streets, there are fine groups of canal boats, lighters and elevators to be had in the morning. From 8.30 to 10 o'clock the light will be the best on the average day. Now and then the afternoon light gives good results.

In many of the locations which have been named it is possible to get foregrounds which will give the composition a balance and completeness which is always lacking where a dreary waste of water fills the lower half of the picture.

The marine picture has a large proportion of its interest in the multitude of strange detail. The photograph will be the most pleasing which is fullest of this detail. Very often, when composition and light and shadow are not all that could be desired pictorially, the richness of details can be made to give an interest to the photograph.

Since writing, another corner of the water front has been brought to my notice. It is the stretch of shore from 50th street northward on the Hudson. At 51st street there is a long, fine dock, and below it the Dock Department are preparing for work. Above there are several piers where interesting combinations of lighters, derricks, etc., are constantly occurring. The region is rich, and well worth exploration at almost any time of the day.

THE DEVELOPMENT OF THE DETECTIVE CAMERA.

By Alexander Black, *Brooklyn Institute.*

The primary principle of the Detective Camera is its portability. Its original *raison d'etre* was its freedom from the tripod. An operative camera without a tripod was, of course, impossible in the time of slow plate. A portable camera did, indeed, anticipate the quick plates, for Mr. Brainerd, at least, visited the Centennial Exposition in 1876 with a small legless camera, with which he man-

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aged to break the rules by taking pictures here and there without a permit; but this portable camera required a rest and time exposure. With the advent of the quick plate the emancipation was complete. This emancipation was not accomplished without skeptical opposition. Mr. Schmid, of Brooklyn, who first patented a detective camera, was confidently assured that the idea was infeasible. There must at least, he was told, be a rod or upright of some kind upon which the box might be rested while focusing was being accomplished. When Captain Ericsson proposed to propel vessels with a screw in the stern, the experts asked how under heaven he expected to steer the craft. A boat propelled from the stern could not, they said, be steered from the stern. The experts were, of course, mistaken. So were the photographic experts who caviled about the focus. The focus is merely a matter of arithmetic; and just as the quick plate and automatic shutter banished the tripod, the lever and indicator removed the necessity for ground glass and cloth. These two primary principles being settled, there came a less vital but highly important element in the "finder"—a camera-obscura attachment which revealed to the operator the scope of the lens. This finder bears precisely the same relation to the camera that the sight bears to the rifle. It is not used in rapid skirmishing. No operator could be considered fully skilled who was dependent upon the finder in rapid or stealthy work. An operator dependent upon his finder would be continually at a disadvantage. But while it is not invariably brought into play, the finder is a necessary adjunct, and we should as soon think of leaving it off the camera as we should think of leaving the sight off the rifle.

Upon the basis of these three elements—the shutter, the focusing lever and the finder—the modern detective camera has grown. Step by step it has developed from a crude and primitive beginning, to a mature, exact and more or less perfect instrument. In many respects this growth has been remarkably slow—slow for an invention of American origin. Perhaps this was because for a long time the portable camera was looked upon as a pretty toy scarcely entitled to scientific attention. The immense significance and utility of the camera were long overlooked, under the supposition that serious and particularly artistic work could be done with the tripod camera only. Since it was decided that the detective had come to stay some interesting scientific developments have been made in its construction. Some of the latest types are really worthy of admiration. But there is still much to be done.

It has always struck me as curious in the matter of photographic apparatus that so many good ideas should be wretchedly executed, and that so much good workmanship should be lavished upon mechanism that is unreasonably awkward. I have never heard this phenomenon satisfactorily explained.

In its best forms the detective of to-day is a beautiful machine, capable of doing work of a high degree of perfection, and imposing upon the operator the minimum of inconvenience. As compared with the tripod camera, the portable camera, in its better forms, has absolutely no limitation but that of size, and this is neither an artistic nor a scientific limitation. It is a limitation in the size of the immediate print, but enlargement somewhat modifies this deficiency. Certainly there are portable cameras so small as to seriously impair their usefulness. The quarter-plate, $3\frac{1}{4}$x$4\frac{1}{4}$, should, I think, be the minimum of size. The 4x5 plate seems to me to be the ideal size, small enough to be portable and large enough to be practical. A 4x5 plate allows for some reduction in making lan-

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tern slides, and this is desirable, even with perfectly sharp negatives. Slides made by contact are relatively deficient in crispness and brilliancy. Contact slides shown in the group are often very satisfactory, but when shown with slides made by reduction the strain is severe.

All perfect portable cameras are arranged for time exposure, which removes any limitation imposed by the speed of exposure. It has been very illogically urged that a camera made for "detective" work should be built for that work only. It is true that the primary significance of the instrument should not be forgotten, but cannot be improper to fit a camera for all the work it can possibly do. There are a number of highly important reasons why the detective should be capable of use in time work at short notice. When taken on a journey a camera should be ready for any emergency. The detective should, indeed, be the universal camera in the matter of equipment. And this does not necessarily imply any deficiency in the arrangement of its strictly portable apparatus.

In other words, the portable camera begins where the older camera leaves off. It begins with all the capabilities of the tripod camera, and adds to this capacity many functions of which the older camera is incapable. It is the camera of the future. It has led the way in many of those directions in which the tripod camera is bound to follow. The idea of the finder and of the focusing lever or screw have already appeared in the conventional apparatus. The detective is the pioneer. It has made us impatient with all except the most convenient forms of camera, whether worked with or without the tripod.

Yet the best of portable cameras is still far from perfect. The ideal detective camera will be a greater triumph of mechanism than any we have yet seen. It will have a certain number of features which we may conjecturally enumerate. Some of these features have already been realized, in fact. It will have two or more lenses—long and short focus—within the box, and quickly interchangeable. It will have a quickly operative focusing adjustment for both lenses, and a simple system of stops quickly changed from the outside of the box. It will have a shutter with great versatility of speed and a changeable aperture for different conditions of exposure, operated between the discs of the lens or behind both, with a spring that will never vary in strength. It will have a substitute for glass plates in holders, yet better than the modern paper or film. It will carry sensitive surfaces for at least a dozen negatives, and the more the merrier. It will change the position of these sensitive surfaces without opening the box at any point to the light. The camera of the future will at least have these features, and all these operations will be effected from the outside of the box by mechanism not discernible to the passing glance. The camera itself will be inconspicuous in form, of light weight and moderate price.

[*Written for "International Annual."*]

A PLEA FOR THE FIVE-BY-FOUR CAMERA.

By PROFESSOR STEGGALL, *of University College, Dundee.*

THERE are many objections, I think, to the growing habit of using very small cameras (of the detective class chiefly) for general purposes. The objects which these cameras are meant to fulfill are sufficiently important to give plenty of scope for their legitimate use; but when a small camera with a plate, say, 2 inches square, which is admirably suited for instantaneous work, is pressed into

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employment as a landscape instrument, the result is not satisfactory. In fact, even the very popular quarter plate is somewhat small and otherwise objectionable, for various reasons. A very small picture is difficult to see at all; but it labors under a worse defect than this: it has to be viewed at a very short distance—in fact, too close for most people's sight. Besides this, the taking of these photographs is so easy and so cheap, the manipulation so trifling in its demands, that little care is generally exercised in their development, printing, etc. Of course they make good enlargement subjects; and *cartes de visite* can be easily taken. The success of this kind of picture can generally be learnt by moderate attention to the remarks of candid friends.

It would be easy to develop further such objections to the popular quarter plate, while the half plate, for a long day, is burdensome. As a suitable camera I would strongly urge the 5 x 4 size. In the first place, its pictures are, though small, yet large enough to be capable of very artistic working and mounting; in the second place, they can be marked or vignetted so as to produce excellent cabinet prints; and in the third place, the size of the camera is the merest trifle over that of the quarter plate; both being square, there is only the difference of three-quarters of an inch.

For several years I have used this size regularly, with four dark slides, and four inner carriers (in case of need) for quarter plates. A lens made for a half plate camera takes good instantaneous pictures, and can also be used as a single lens. My little camera, which is quite light, has a bellows extending to 13 inches.

Of course most amateurs will want something fairly portable, yet a good deal larger than their smallest instrument. A whole plate is, in my opinion, the most suitable size; and here again the rectilinear half plate lens, if of good quality, can be used with a small stop, or as a single landscape lens with the whole plate camera. Last of all, for special work a 10 x 12 or 12 x 15 forms a suitable termination for most amateurs. This camera can have its lens adapted to the whole plate front, for instantaneous work, with full aperture. The general equipment, then, of quarter plate, half plate and larger camera, is in my case replaced by a 5 x 4 whole plate and 10 x 12. Two lenses are sufficient for most of the purposes of an amateur; and certainly since I discarded my half plate and gave away my 7½ by 5, I have never regretted the change.

To those who do not care to be troubled with more than one portable camera I should advise the small 5 x 4, with a lens of good focal length—say 7 inches. So few makers encourage this size, and so few amateurs apparently try it, that I have risked the commonplace in sending these simple notes.

[*Written for "International Annual."*]

ORTHOCHROMATICS AND APOCHROMATICS IN PHOTO-MICROGRAPHY.

BY E. C. BOUSFIELD.

THE range of application of photo-micrography has been enormously increased of late by the two appliances which furnish the title of this note; and it may not be amiss to devote a few lines to a short discussion upon them, especially as they both have, in a way, the same object, viz., the clearing away of color difficulties from the path of the photographer.

The conditions requiring the use of orthochromatic plates in photo-micrographic work are essentially different from those which present themselves

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in the reproduction of even very difficult objects, such as an oil-painting with light blues and dark reds, in ordinary practice. There is no portion of such an oil-painting which does not reflect all the colors of the spectrum, in varying degrees, it is true, but still to such an extent as to be capable of impressing, with prolonged exposure, even an ordinary plate of "17 Warnerke."

The photo-micrographer, however, who has to reproduce such an object as, say, an insect with clear wings and a brown body, finds, on examination by the spectroscope, that whilst the former produce no effect upon the spectrum, the latter stops out the whole of the rays down to the extreme orange, and it is thus by a light in which the most sensitive plates might safely be worked that he has to photograph one portion of the object, whilst the full blaze of light is passing through another portion, and so, to borrow the expressive French term, "burning" that portion of the plate on which its image should be impressed. When preparing for publication my "Guide to the Science of Photo-micrography," I spent a good deal of time on this matter, experimenting with screens of various colors, endeavoring to find one which should sufficiently lower the actinic power of the light which passed through the colorless parts, without altogether blocking out the darker ones. Three were soon singled out, dark blue, signal green and yellow, and on ordinary plates, with the first mentioned, I found that a moderate degree of success could be obtained, the others acting in a similar way, but not so satisfactorily. It was soon evident that what was required was to eliminate actinic effect, as opposed to visual, altogether—that the objects must be photographed by a light of such a character as to reduce all portions to shades of the same color, and the tint which yielded the best results was a deep orange (the color supplied by Warnerke with his orthochromatic plates as originally manufactured). With such a tint the use of ordinary plates, except by direct sunshine, would be almost hopeless, and indeed I have not hitherto been able to obtain any color-sensitized ones which fully satisfy the requirements of such a position. Dixon's promised splendidly, and had I been able to keep up the supply my difficulties would have been overcome; but alas! trade jealousy proved too much for Dixon, and the very best orthochromatic plates which have ever been made are no longer in the market. Latterly I have taken to the use of a mixture of erythrosin and cyanin, and as some of my fellow laborers may like to try it, I append the formula which has yielded the best results in my own hands.

1.—Dye Solution.

Cyanin	8 grains.
Erythrosin	8 "
Absolute alcohol	3 drams.
Distilled water	5 "

Keep in the dark.

To make the color sensitizing bath, take—

Dye solution	1 dram.
Ammonia, ten per cent	1 ounce.
Distilled water	8 ounces.

The plates are bathed for two minutes, drained on edge, and dried in the dark. I believe it to be advantageous to warm the air which passes through the drying box to a temperature not exceeding 80 degrees, but care must of course be taken to exclude the entrance of the products of combustion. With these

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plates and suitable screen I believe there are few objects whose color, if they transmit any light at all, will prevent their reproduction; but the screen must be so arranged as to reproduce upon the plate the visual intensities of the respective portions of the object. Too dark a screen will destroy contrast altogether, too light a one will fail to give the desired effect, and it is in the choice of a screen that the skill of the photo-micrographer will be chiefly shown.

To those who prepare objects with the view of reproducing them by photography, I would strongly recommend iodine-green, and Grenacher's borax carmine, or picro-carmine, as staining fluids; many of the difficulties which necessitate the use of orthochromatic plates may thus be avoided. But where Nature has chosen her own stains we must do the best we can, and experience and patience in the time of exposure will furnish the best guide. As to the screens, I am strongly in favor of the use of solutions either of chromic acid or bichromate of potash in a glass cell with parallel sides. The actinic effect of solutions of definite strengths can easily be gauged by means of Warnerke's sensitometer screen, exposed in the camera over an orthochromatized plate, and much time and trouble may be saved by the adoption of this method. Solutions of various strengths can be kept easily, and rapidly interchanged as may seem necessary.

The use of apochromatic lenses has led to the adoption of a much higher standard, as regards both sharpness and contrast, in photo-micrographic practice, and no negative would now be considered satisfactory, by the best judges at any rate, which did not admit of the production from it of a positive suitable for lantern work. Lantern slides form so convenient a method of illustrating lectures to large audiences that their manufacture is becoming a very important part of the photographer's work, and inasmuch as, so far at least as regards photo-micrography, the negatives used must be very nearly perfect, in clearness, color and density, to give the best results, a distinct advance in the quality of prints shown at exhibitions may be looked for. In my own experience I find that many negatives which yield excellent silver prints fail utterly when applied to lantern work, and unfortunately it is not always possible to judge beforehand. My own impression, confirmed by my friend Mr. Pringle, is that bromide paper furnishes a good test of negatives in this respect. The whites in both cases must be absolutely clear when all detail is well out. The absolute sharpness and freedom from color fringes of the images yielded by the apochromatic objectives, are important means toward obtaining the sharpness required for so enormous a magnification as is used when the image of a microscopic object is thrown upon a 10, 15 or 20-foot square screen. The great point to be aimed at in photo-micrographic negatives is that very chalkiness and hardness which are to be avoided in general photographic work, and everything depends upon exactly the right amount of exposure being allowed. The developer, provided it be fairly normal, is a matter of indifference. It should err, if at all, in having a full quantum of restrainer; but if the exposure be wrong, a good lantern slide can never be made from the resulting negative.

"WILL you vote for my bill?" inquired the lobbyist of the legislator. "No, sir," replied the latter; "your bill is a swindle." "Why, man, you must have the wrong bill in mind. I mean this fifty-dollar bill!" "Well, this appears to be a good bill," said the legislator, after examining it critically. "I'll vote for it, of course."

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MULTA RENASCENTUR QUÆ JAM CECIDERE.

THIS is the true Magic Art, by which years ago and now forever spirits will be made to appear and be photographed:

Abracadabra! On one side of the ground glass place slightly out of focus a being dressed in white, as ghosts always make their appearance (black background, of course). Coat a plate,  —sensitize,  —expose,  —develop,  —strongly intensify,  —muriate—wash slightly and flow on the negative a dilute solution of *aqua fortis*  with a little *lana philosophica*, which should be for five minutes allowed to act. This done, expose the negative to a bright sunshine, placing when it is dry a white paper behind, and let  act for many hours. Then immerse the plate in a weak solution of com. Kalia  and when the film becomes loose wash it off without rubbing and let dry. Nothing on the glass! It is clean; it is quite clear. Keep it for use. 3, 7, 13 are the magic numbers of plates to be prepared. They must be thus marked on the back  , and on the front  ; which are cabalistic figures. Here comes a—customer! I suppose you are a sorcerer. Show to him this clear and clean glass, and in his presence coat it with  , sensitize it, and when ready let him (the customer) be seated near a table, upon which you place a skull, an open Chaldæan *grimoire* and a sand-glass; a black cat, also, if you have one at hand. Draw, then, on the floor my cabalistic seal, and make the incantation, *Kèphalë! Argyros!! Hydôr!!!* and shoot! Now behold! on developing the negative the sitter's likeness and that of the evoked spirit or spirits—for there might be a lot of them—will together appear!!!

 Heg. 1266. AABAM ABADIR. 

—*Translated from "Ghaïat-el-Kâkim."*

N. B.—This photo-magic should not be mistaken for the humbug process on gelatine plates imagined by those not initiated to the mysteries of the Black Art; for the spirits they pretend to evoke are *not* spirits, but reproductions—and very bad ones, too—of photographs vignetted or cut in various shapes and copied in the ordinary manner. From the negatives transparencies are made and the portraits isolated by covering the background with Gihon's opaque. Then, before or after exposure, the gelatine plates are placed in contact with the transparencies, and exposed to the light of a gas or petroleum lamp in the dark room, whereby the picture of the bogus spirit appears with that of the sitter on developing.

Other means have been devised to produce the same illusion, (?) and always without even taking the trouble of reducing or enlarging the portraits of the

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spirit to a proper size, the head being sometimes as small as the head of a mosquito and sometimes as big as that of a mastodon, and lighted right and left. Amongst the new photo processes employed by those would-be magicians the following is worth noticing: They place on a table a well-polished silvered basin, or something like it, and, after the usual talk, commence to magnetize the water they pour into it and to evoke spirits. Suddenly they fall into trances, see the spirit in the water, utter incoherent words, and then throw in the basin a sheet of white paper, which perchance happens to be on the table. When, after a few seconds, they turn that paper over, and, O wonder! there upon it is the spirit's likeness! This wonder is nothing, however, but the application of a phenomenon Herschel discovered nearly half a century ago. It is as follows:

A silver print is made on plain salted paper, fixed without toning in a new hyposulphite of soda bath, and, after carefully washing, placed in a solution of mercuric chloride, where the silver forming the photographic image is converted into a white compound consisting of silver chloride and mercurous chloride (calomel). When the image has vanished the paper is perfectly white and nothing can be detected on its surface. Now, this dormant photograph, as the illustrious English philosopher termed it, in contact with a dilute solution of hyposulphite of soda, re-appears with a deep brown color, the mercurous salt being transformed into sulphide.

And now, reader, what do you think about this? What are your conclusions? As for me, I will confidentially tell you the plain truth. The discoverers of these and every other photographic processes, Nièpce, Daguerre, Herschel, Becquerel, Archer, Poitevin, Bennett, Vogel, *et tutti quanti*, are sorcerers and nothing else. P. C. Duchochois.

[*Written for the "International Annual."*]

HANDY HELPS.

BY JOHN NICOL, PH.D.

The photographer, whether professional or amateur, should be, to a certain extent, a "Jack of all trades," and know just how to improvise all sorts of handy appliances to aid in the hundred and one operations that he is continually called on to perform.

If he is wise, and possesses the genius that is essential to comfortable success, he will have, in some quiet corner of his premises, something that can be converted into a temporary bench, a few simple wood and iron working tools, and especially a lot of old cigar boxes. No one who has not actually tried to make all sorts of things out of cigar boxes can know how really useful they are. Let me mention one use to which I have long put them, just by way of example. My dark slides take plates 7½ x 5, a size not to be found in the American market. I must therefore cut half an inch off of each, not an easy thing to do in the ordinary way. I take the lid of a cigar box—one over 8 inches in length, of course—and glue a strip from one of the ends on the end of it, at a distance from the other end of exactly 7½ inches, less the breadth of the diamond. I lay the 8-inch plate, face down, on a pad of paper, take the cigar box gauge, with the side on which the strip is glued down, lay it on the plate, and slide it till the cross strip touches the end, and then draw the diamond across. In this way, in perfect darkness and with absolute certainty, I can cut a dozen plates in a few minutes.

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This same gauge comes in handy for other purposes. I make many lantern slides, sometimes on transfer paper and sometimes on plates specially prepared, and so want to cut lots of plates to the standard size of $3\frac{1}{4}$ by 4. For this purpose I take the sides of the cigar box, and cut one to $3\frac{1}{4}$, less the breadth of the diamond, the other to 4 inches, with the same provision. In this case I lay the gauge with the glued on cross-piece up, lay the plate on it, pressing it close to the cross-piece; lay first the one, then the other of the 4 and $3\frac{1}{4}$ templets, and cut away, turning out unerringly many lantern slide covers or plates on which pictures have been transferred in a few minutes.

Oh, empty cigar boxes are a great institution; and though I am not silly enough to buy cigars, as there is more comfort in a pipe at a tithe of the cost, I have many friends who are, and who keep me fully supplied.

A NEW DYE (?)

BY P. C. DUCHOCHOIS.

ANILINE GREEN—the aldehyde—was discovered by a photographer, Mr. Usebe, in trying to fix pictures. Well! aside from reproducing subjects in the most wonderful manner, photography is occasionlly useful for something else, too.

Last week I had to develop some fifty pictures, taken out-doors, on $8\frac{1}{2}$ x $6\frac{1}{2}$ gelatine plates, which I did with pyrogallol and the sodic carbonate, my favorite developer. Accidentally I left over night a negative in the fixing solution, which was in a tin tray, such as is used for cooking. The next morning I found that plate stained under the film with a reduction of partly sulphureted metallic silver, showing the usual dichroism, and, to my surprise, the gelatine film was dyed rose-lilac!

In the fixing solution there were consequently the sodic thiosulphate, the pyrogallol from the negatives and the sodic carbonate, besides alum from the negatives also, which before fixing were immersed for forty seconds in a solution of this double salt, to harden the gelatine film, and then rinsed under the tap. The quantity of pyrogallol was, therefore, very small; also that of alum; but the latter sufficient to give rise to the evolution of sulphur dioxide, which was readily detected by its characteristic smell.*

I next ascertained that so long an immersion was not necessary to dye the gelatine film. For after fixing probably six or eight negatives the same chemical action occurred in from ten to fifteen minutes.

In a wooden or porcelain tray the coloration and the reduction do not take place, which shows that the presence of the metal is a *conditio sine qua non*, as should be expected.

Not having the time to investigate the nature of the compound so formed—whose color is similar to that of gallein—I send this communication to the BULLETIN for publication, leaving to a better chemist than I am the task of finding out the constitution of this new (?) dye, and how, if it can be of any utility, to produce it for industrial purposes. In photography it can be used only to color diapositives.

NEW YORK, April 29, 1889.

* The solutions contain also the compounds Na Br and $Ag_2 S_2 O_3$, which have no action in the chemical changes in question.

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A COMPARISON OF DEVELOPERS.

BY LYONEL CLARK.

[Before Camera Club Conference, London.]

(*Continued.*)

To recapitulate the salient differences between pyro and quinol; the attainment of a low curve of intensity practically means that the detail, or least exposed, portions must be brought out rapidly before the high-lights, or most exposed portions, have had time to gather density, and this may be said to depend on the speed with which those details can be brought out. Now, when a small quantity of pyro is present increase of alkali means increase in the speed with which the detail appears; but with quinol, on the contrary, increase of alkali, in reasonable quantity, does not mean increase in the speed of development. In order to obtain this the quinol itself must be increased, in which case the development can be made most rapid, but unfortunately it is attended with an equal increase in density. The experiments show this most conclusively. Potassium bromide remains constant throughout. As its action is always to increase density, and as I was striving to keep density down, it became unnecessary to take this salt into account, although I found that a little is necessary to prevent a general slight reduction of the presumably unexposed portions of the film.

I found no practical difference in results when using the fixed instead of the caustic alkalis; development was undoubtedly more slow, but the gradations were practically the same.

With ammonia, I found the greatest difficulty in getting any sort of an image, unless both the ammonia and the quinol were increased to a very great extent. I find one note, that with a half-grain of quinol no image showed after ten minutes, although 25 minims of pure ammonia were added. The whole of the results with ammonia give green fog and metallic fog in a most virulent degree, and prove, I think, pretty conclusively, that quinol is just as prone to fog as pyro, when used with the same alkali.

Passing now to the negatives developed with ferrous oxalate, we see that the rate or speed of development increases with the amount of the potassium oxalate present, so that it is possible to somewhat vary the gradations of the scale. One curious note, on diluting the ordinary developer with water, increases the density of the negative very considerably, being directly antagonistic to the result of having the oxalate in great excess.

From the above series of experiments I am led to deduct that, as far as regards the getting out of detail, pyro, quinol and ferrous oxalate are all equal. As regards density, that is, the getting of the greatest amount of deposit for a given time of exposure, quinol and ferrous oxalate have, perhaps, the advantage over pyro, but my pyro series of experiments do not obtain any specimens specially made with the idea of getting density; so that it is quite possible that pyro may hold its own even in this, in most cases, very undesirable respect.

With regard to getting a low intensity curve, pyro is a long way the best, ferrous oxalate comes next, and quinol last. I am, therefore, led to believe that for negative work quinol will never oust pyro, to which I consider it decidedly inferior. It is, of course, difficult to make any statement as to the anti-fogging tendencies of quinol, but I am inclined to believe that this is simply a question of the alkali that is used; with ammonia, even with small quantities, quinol gave me green fog as badly as any pyro developer ever did, and I therefore con-

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sider that it is not altogether so successful in this direction as one has been led to suppose. Quinol is not as soluble as pyro, and therefore presents a certain disadvantage from the point of view of ready carriage; and, lastly, quinol is more expensive than pyro. Therefore, taking all these considerations into account, I do not think that quinol is destined to survive long as a developer for photographic negatives. As a developer for lantern-plates, owing to the great beauty in the color of deposit that can be obtained by it, it may possibly live long and prosper; but as a developer of negatives its restoration to the country of its birth will be as short as the historically famous restoration of the Stuart dynasty.

DISCUSSION.

Mr. E. J. WALL said that he had made some comparative experiments with hydroquinone, ferrous oxalate and pyro, and had got results that entirely disagreed from Mr. Clark's. He had found that hydroquinone gave the best intensity curve, then pyro, and lastly oxalate. He considered that Mr. Clark had used too much sulphite; he should only have used equal weights, and no bromide. He thought, too, that the best results would be got by a mixture of the carbonate and hydrate of soda. One point he had found efficacious in giving a slow intensity curve was one proposed by an American gentleman, and consisted in soaking the plate in the hydroquinone first.

Mr. WEBBER said that he had had good results from using equal weights of hydroquinone and potassium bromide, and thirty times as much sulphite.

Mr. ELDER did not think that the addition of sulphite made any real difference; personally he used six times the weight. He quite agreed with a mixing of the alkalis, such as the two hydrates, or a hydrate and a fixed alkali, which probably arrived at very nearly the same thing, and had got good results. Some four or five years ago he had made experiments on the fixed and caustic alkalis, and had found the latter to be the best. He wished, however, to protest most strongly against the use of the name quinol, which was ridiculous, as quinol was quite a different chemical to hydroquinone, from which it differed by having one molecule of water less.

Mr. BOTHAMLEY said that the only really reliable experiments that he was aware of having been made hitherto, were some that were carried on in the laboratory of Doctor Eder: from these experiments it was deducted that quinol was a little inferior to ferrous oxalate and pyro, but the carbonate was the alkali used. This pointed out the desirability of making a large variety of experiments, and not deducing results from one experiment only. In treating of the density curve of plates, it was also essential to try more than one brand of plates, for every one knew that although plates might be the same as regards their rapidity, no two gave the same intensity curve. With regard to the name quinol, he had now been for some years one of the abstractors for the Chemical Society, and he had invariably found this salt, one of the phenyl group, properly classed under the name of quinol; and it must not be confounded with quinone, a name which he was not aware had ever been used for hydroquinone.

The CHAIRMAN said that he did not agree with the last speaker's remarks as to the nomenclature of hydroquinone, but a discussion of it would bring up a chemical question foreign to the present paper. With regard to the use of sulphite in the developer, at the present time photographers did not seem happy unless they were making some mess or other. A far better preservative than sulphite was distilled water, and in his first experiments with hydroquinone he had used nothing but pure water, and even when using ammonia he found an entire absence of fog. Of course, if distilled water was unprocurable, and the ordinary water contained lime, then sulphite might be necessary.

Mr. CLARK, in replying, said that of course it had been impossible to try all the combinations of the different alkalis, and if this was to be further complicated by trying each different brand of plates, the time necessary to complete them would be somewhat long. There was, however, no reason why other workers should not take up the thread where he had dropped it, in which case he hoped his experiments might be found of some value. In regard to the nomenclature of quinol and hydroquinone, he personally was entirely indifferent, and he would stand aside and allow the chemists to fight out the battle themselves, and he would then use the victor's name with the greatest equanimity.

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ON THE USE OF DRY PLATES IN PHOTO-MECHANICAL WORK.

BY W. T. WILKINSON.

[Before Camera Club Conference, London.]

TWELVE months ago, when any one asked me if dry plates could be used for photo-litho and kindred negatives, the answer was, that there were no plates in the market to be depended upon, giving the absolute clear lines so necessary for success. Now, I am glad to say that there are two brands of plates in the market that give negatives quite as good as the wet process when working at its best. This word BEST will no doubt recall old memories, the reverse of pleasant, in the minds of many who had to put up with troubles that a dry plate worker of to-day knows nothing about. Now, in the case of bother the operator can get out of it by opening a fresh box of plates; then, no matter how much care was taken, the negatives could not be made.

The two brands of dry plates alluded to above are Mawson & Swan's photo-mechanical, and England's rapid chloride, and upon either plate negatives suitable for photo-litho or photo-zinco—line, or grained—may be made, equal to the best wet-plate negative, and with infinitely more certainty, and far less trouble.

These plates may be developed with either pyrogallic or hydroquinone, the last being perhaps the best. For the sake of those who would like the formulas I use, they are here given:

Pyro and ammonia:

STOCK PYROGALLIC ACID SOLUTION.

Meta-bisulphite of potash	1 ounce.
Bromide of potash	640 grains.
Water	8 ounces.

Dissolve; then add 1 ounce of pyrogallic acid; then make up to 10 ounces with water.

DEVELOPER, No. 1.

Stock pyro, as above	2 ounces.
Water	18 "

DEVELOPER, No. 2.

Liquor ammonia, .880	1 ounce.
Water	19 ounces.

For a normal exposure, use two parts No. 1 to one part of No. 2.

Pyrogallic acid and soda:

STOCK SOLUTION PYROGALLIC ACID.

Meta-bisulphite of potash	2 ounces.
Bromide of potash	240 grains.
Water	8 ounces.

Dissolve; then add 1 ounce of pyrogallic acid, and make up to 10 ounces with water.

DEVELOPER, No. 1.

Stock pyro, as above	2 ounces.
Water	18 "

DEVELOPER, No. 2.

Saturated solution, washing soda.

For a normal exposure, use eight parts No. 1 to one part No. 2.

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Hydroquinone developer :

SOLUTION, No. 1.

Hydroquinone	80 grains.
Meta-bisulphite of potash	120 "
Bromide of potash	5 "
Water	20 ounces.

SOLUTION, No. 2.

Caustic potash, pure stick	200 grains.
Water	20 "

For a normal exposure, use equal parts of No. 1 and No. 2.

Do not waste time and plates trying the ferrous oxalate, as it is the same with these as with ordinary plates. If ferrous oxalate gives a good negative, any of the above developers would have given a better, *as under no circumstances will ferrous oxalate give as good a result as either pyro or hydroquinone.*

For these plates much more light may be used in the dark room, in fact, should be used, so that the whole progress of the development can be seen with comfort. Two thicknesses of golden fabric will be found quite sufficient.

The generally accepted idea for a photo-litho negative is that it must be dense. Never mind about anything else so long as it is dense. This is wrong. Get as much density as you can without clogging up the lines; but the first consideration is absolutely clear lines. Get this and the density is of little consequence. Of course, it must be understood that a *gray* negative will err on the other side.

For making grained screens for half-tone type-blocks, these plates are a perfect boon, it being so easy to get screens free from stains and spots—a condition of things not always possible with wet plates. Besides, the density required can be obtained at one operation, instead of the risk of clogging up entailed by the operation of intensifying with mercury, etc.

A few words as to these screens may be acceptable. For the production of half-tone blocks it is necessary to have a variety of these screens ranging in density from a gray to almost a jet-black, the lines in each case being perfectly clear. For each picture to be reproduced a screen must be used that will best suit it. For a flat picture use a thin gray screen, whilst for a hard black and white portrait use the dense screen.

The grained negatives resulting from the use of the screen must be developed so as to get the lines clear. Density must not be aimed at, it being neither possible nor desirable.

For collotype work the wet process has no advantages over good dry plates, as, with care and skill, quite as good negatives of ordinary subjects may be made upon dry plates as upon wet, and that with less trouble and more certainty, whilst for color-rendering the dry plate gives the best results.

Dry plates can be stripped or reversed with just as much ease and certainty as wet plates.

If the mirror be used for making reversed negatives for collotype, patent plate glass must be used, and this would be too expensive from the necessary failures and other causes; so stripping must be resorted to, and I will here give you the method I have used with unvarying success since 1884. The operations are simple and easy, and its certainty may be judged from the fact that I have never met a brand of plates that it does not suit.

1. Clean a few glass plates a size larger than the negatives to be stripped,

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soak them in weak acid, rub both sides with a clean rag, and rinse under the tap; then coat with the following solution:

Gelatine	2 drachms.
Water	20 ounces.
Saturated solution, chrome alum	5 drops.

Soak gelatine till soft in the water previously mixed with the chrome alum. Then melt and filter the flood over the wet plate and stand up to dry. These plates improve by keeping, so a lot may be prepared at one operation.

2. Clean back and edges of negative to be turned.

3. Place upon a leveling stand, and cover with as much collodion as it will hold without running off.

4. Let this film of collodion set thoroughly right through.

5. Immerse the negative in clean, cold water, changing occasionally until the greasy appearance is quite removed, and the water flows over the film quite evenly.

6. Immerse the negative in a dish containing: fluoric acid, 2 drachms; water, 100 ounces. Rock the dish until the corners of film show signs of coming loose. Then remove and wash under the tap, both front and back.

7. In a dish of clean water put one of the gelatinized plates, the gelatine film up. Now place the negative face down upon the surface of water, when by a little careful management the film will leave the glass and float upon the surface of water. Now raise the glass plate gently, carefully adjust the film in position, then lift the two slowly from the dish, and, with a soft squeegee, carefully expel the water from between the glass plate and the film.

8. Flood with, or immerse in, methylated spirit of wine, then place on a rack to dry.

When it is desired to have six, eight, ten or twelve negatives upon one plate, they are stripped as above. Then a plate the requisite size, previously gelatinized, is placed on the bench and covered with water, the films being lifted from the water and placed in position one by one; when all are in position place a piece of macintosh cloth over all, then squeegee well.

The process given here is perfectly safe, and if one or two points are attended to, there need be no hesitation in turning the most valuable negative.

The important points are, always clean the back and edges of negative, else the tiny shreds of gelatine usually left on the back of gelatine negatives will be detached by the flusic acid, and will get between the film and glass when stripped, and being so very attenuated will be difficult to dislodge.

Be sure and get a good film of collodion upon the negative, so that the stripped film is easily handled, and any risk of frilling prevented. Be sure the film of collodion is thoroughly set before immersion in the water, else a portion of the film will be opalescent. When this does happen, flood the plate with a mixture of ether and methylated spirits, and remove the collodion by rubbing gently with the fingers; then wash and dry, and try again.

Stripping films are not dry plates, in strict sense of the term, but are close enough allied to come under the heading I have chosen, so I will venture upon a few words as to their use.

In making negatives for collotype printing, the roll holder and stripping films will be very useful, as the negatives after development need only be mounted upon patent plate glass—previously collodionized—and when the paper backing is

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removed the negative is in its right position for collotype, and if afterwards required for silver or platinum printing can be stripped in the usual way. The Vergara films dried upon collodionized glass are just as useful, as also are Pumphrey's films.

TO MAKE GRAINED NEGATIVES FOR ZINC ETCHING WITHOUT A SCREEN.

BY W. T. WILKINSON.

[Camera Club Conference, London.]

THIS is done by coating the plates with an emulsion containing sulphate of baryta in very fine powder, and well shaken up before coating. Pictures are taken upon these plates, and developed and fixed in the usual way, but the image instead of being smooth and nice will be covered with myriads of fine pinholes. These negatives are used for printing on the zinc, in bitumen, then etched in relief for type blocks.

Instead of sulphate of baryta, carbonate of soda, etc., may be used in the emulsion, and, after fixing, immersion in weak acid will develop the pinholes. The bromo-chloride emulsion may be used upon collotype plates, followed by drying them in the oven at a high temperature, exposing under a reversed negative. Develop and ink up as for the paper, pull the transfers upon ordinary lithograph transfer-paper. To obtain a coarser grain soaking in warm water will develop the reticulation.

SEMI-CENTENNIAL OF PHOTOGRAPHY.



MECHANICS' HALL, MEETING PLACE OF P. A. OF A., AT BOSTON, AUGUST 6-9, 1889.

BUFFALO, N. Y., May 22, 1889.

To the Editors of the BULLETIN:

There is no longer a doubt but that the "Grand Semi-Centennial Celebration of Photography," held under the auspices of the Photographers' Association of America, will be a success. Encouraging news from every quarter indicates that the largest gathering of the photographic fraternity that has ever been known will assemble in Boston on the 6th of next August.

We have been credibly informed that there is a great deal of silent preparation being made to capture some of the "Semi-Centennial awards." Everything tends to show that the contest will be sharp and spirited, more especially for the "Grand Award," which will be not only valuable intrinsically, but bring a small fortune to the lucky man.

In addition to the grand display of art photographs which are to enter for competition this year, we are promised rare specimens that have won prizes during the life of the Photographers' Association of America, as well as a number of collections of the most celebrated pictures made during the last half century.

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In the photographic merchants' department the space has never been taken so rapidly or in such large quantities. A letter from Secretary Scott informs me that all the thirty thousand square feet on the main floor have been taken, and we are obliged to put a number on the second floor.

The great manufacturing establishments of E. & H. T. Anthony & Company and Scovill & Adams Company, of New York, and the Blair Camera Company, of Boston, have informed me that they have been making extensive preparations for the past year to have the grandest and most complete display of photographic apparatus ever put on the market.

The Eastman Dry Plate and Film Company says: "Tell the photographers that we will make a larger exhibit than ever before, and our awards will be more costly and greater in number than at any previous convention."

W. G. Entrekin, of burnisher fame, tells us that he is going to ship burnishers to Boston by the ton, that will show all the latest improvements.

The well known house of Smith & Pattison, Chicago, have taken nearly twelve hundred square feet, and "Tom" Pattison says they are going to ship most of their store down to Boston, including their burnisher.

L. W. Seavey has built a new studio, that he might be able to get out the great amount and variety of backgrounds and accessories that he intends to exhibit.

The Stanley and Harvard Dry Plate Companies tell us they will shortly announce some elegant prizes for the best collection of photographs made on their respective plates.

The Acme Burnisher Company, of Syracuse, N. Y., say they will soon make known something new and startling in the way of an award for the best collection of art photographs at the Boston Convention.

A letter from Mr. Althaus, the manager of the Cramer Dry Plate Works, says that Mr. Cramer will return about the first of June, and will be on hand at Boston wtth renewed health to make a grand display and help celebrate.

These are only a few of the good things that are promised for the photographers who attend the convention, and others will be announced as soon as we are informed.

George H. Hastings, First Vice-President, says that Codman & Company, Benjamin French & Company and the Blair Camera Company will unite with the photographers of Boston to do all in their power to make the Tenth Annual Convention a complete success.

A letter from Tiffany & Company, of New York, says that the silver badges for members will be in the hands of the Treasurer about June 1st, and I would advise all of those members who want to attend the opening ceremonies on the morning of August 6th to send in their dues, and Treasurer Carlisle will send them a badge with receipt. This will avoid the great rush on the opening day.

I would also announce that the headquarters of the Executive Committee will be the Tremont House. Rates, $2.50 and $3 per day; $4, including bath. Many of the older members of the Association will recognize in the proprietor, Mr. Harris, their former host at the Buffalo Convention, when they made the Genesee their headquarters. Mr. Harris promises to do everything in his power to make our visit to Boston a pleasant one. Very truly yours,

H. McMICHAEL.

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OUR ILLUSTRATION.

THE picture with which we illustrate this issue of the BULLETIN is a very good example of modern photographic work. It is very artistic in the matter of lighting, the beautiful gradation of lights and shadows upon the animals making a very pleasing picture. It is also interesting as showing what can be done with the new negative films. When such excellent negatives can be made upon films, and with the same ease as upon glass plates, these latter will most surely have to give place to the former. Of course, much of the success of these pictures is due to Mr. Newton's skill as a photographer; nevertheless there are quite a number of workers who use these films in place of glass plates, and are perfectly satisfied. This fact has already been noticed by manufacturers, and our publishers are busy adapting special forms of apparatus to the use of these new carriers of the sensitive surface. With time and experience in their manufacture, the day is not far distant when films will supersede glass plates in almost every branch of the photographic art.

PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

BOSTON MEETING.

To the Editors of the BULLETIN:

THINKING that perhaps photographers throughout the country would like to know something in regard to the progress and preparations being made for the coming Convention to be held at Boston, August 6th to 10th, inclusive, I will say that, from the present outlook, the Tenth Annual Convention and Semi-centennial of Photography will far excel anything of the kind the Association has ever known.

Everything points to a booming success and a large attendance. All seem to be anxious to attend this, the fiftieth anniversary of our art. And hard indeed are many photographers working to bring home with them a semi-centennial medal.

All may judge of the interest being taken when, at the present writing, out of our 30,000 square feet of space in Stock Dealers' Department, there only remains part of one small section not taken. So great has been the demand for space that almost all has been disposed of by telegraph, nearly every State from Maine to California being represented. Many of the dealers assert that their display will far excel all former attempts. And certainly a more elegant building could not be found, both for the dealers' and the photographers' exhibits, being large, roomy and well lighted.

As to the photographers, many of the more enterprising ones are writing for space. All seem to be more than ever interested this year; and well they may be, for a more elegant line of prizes has never before been offered.

The bronze figure alone will be a fortune to the lucky photographer who secures it.

Then come the gold medals of artistic design and workmanship, and as pure as gold can make them, being twenty-four carats fine. These are being made by the well known and popular firm of Tiffany & Co., New York. All may look for something fine in the way of medals.

The badges will be entirely different from those used at former conventions.

They are to be made of metallic silver, in the shape of a button, similar to those G. A. R. badges, with Daguerre's head stamped in bold relief on the front.

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Every photographer throughout the land should possess one of these. Remember, it will be your only chance to obtain a semi-centennial badge, and whether you attend or not, send in your names and dues, and receive one of those souvenirs.

There are many other attractions, too numerous to mention, that will tend to make the Boston convention a decided success. Yours truly,

O. P. SCOTT, *Secretary P. A. of A.*

GEORGE H. HASTINGS, Chairman of Committee on Hotels, has made the follwing report in the way of letters from the proprietors of several houses :

"THE BRUNSWICK."

P. A. OF A :—We will make the rate for members of the convention at $4 per day each. Very truly, BARNES & DUNKLEE.

"UNITED STATES HOTEL."

MEMORANDA of rates to the delegates to the Photographers' Association of America, August 6th to 10th. Room and full board for fifty or seventy-five at $2.50 each. If two men in one room and in one bed, $2 each. Rooms only, $1 per day and upwards, according to size and location.

TILLEY HAYNES.
FREDERICK KELSEY, *Attorney.*

"AMERICAN HOUSE."

To P. A. OF A. :

GENTLEMEN,—We will be pleased to accommodate delegates to the Photographers' Convention, to be held in Boston August 6th to 10th, for $2.50 and $3 per day, according to accommodation desired.

To those wishing rooms only and the privilege of taking meals at option, we could give rooms for from $1 each per day and upward.

Very truly yours,
HENRY B. RICE & Co.

"THE QUINCY."

MR. GEORGE H. HASTINGS :

DEAR SIR,—We can furnish for any part of your party three meals and one lodging, consisting one day, for $3 per day for each person; and if two beds in one room, two must occupy the same room. Yours truly,

J. W. JONSON & Co.

"REVERE HOUSE."

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A PRIMARY teacher was giving an object lesson on the word transparent. She told the children that water and glass are transparent because one can see through them, and then asked them to name something else that is transparent. One little fellow raised his hand in great ecstacy. The teacher said, "Well, Harry, what is it?" "A hole!" shouted the boy.

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ANTHONY'S
Photographic Bulletin.
EDITED BY
Prof. C. F. CHANDLER, Ph.D., LL.D.,
Aided by ARTHUR H. ELLIOTT, Ph.D., F.C.S.,
and a corps of practical assistants.
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E. & H. T. ANTHONY & CO., Publishers.

AMERICAN INSTITUTE—PHOTOGRAPHIC SECTION.

19 ASTOR PLACE, NEW YORK.

INFORMAL MEETING, MAY 15, 1889.

The *Vice-President*, J. B. GARDNER, in the chair.

Mr. O. G. MASON exhibited a camera box he had devised for exposing dry plates of the largest sizes without the necessity of a slide in the plateholder. This box was carefully examined by all present, and regarded as a very practical and clever piece of mechanism, and a great improvement on the old method of exposing large plates.

Mr. Mason said: "As it is my intention to secure a patent, I trust the reporter will only give it a brief notice in his record of this meeting." In compliance with this request, the inventor's explanatory remarks are here omitted.

Mr. Mason also exhibited a number of excellent large pictures of the Centennial parade, taken from the reservoir, corner of Fifth Avenue and 42d Street. These pictures were greatly admired, and naturally led to a general talk concerning the part photography played in presenting a truthful record of this unprecedented celebration.

Dr. J. W. BARTLETT gave a very interesting account of his efforts in securing some of the most noteworthy scenes interspersed along the line of march, and recounted some of the unexpected difficulties he encountered—thus suggesting the necessity of forethought, careful preparation and experience in order to realize even our most humble expectations. Photography, he said, was not what it seemed to many people, a merely mechanical handicraft, but often required the best thought and skill of both the artist and chemist. To the successful photographer, therefore, was due a higher meed of praise than was usually awarded to him.

Mr. THOMAS FARIS said: "Though I have been experimenting in photography for nearly half a century, I have continually been finding something new and useful in it, and I believe its applications in the arts and sciences are as yet only in their infancy. Holding this belief, I have never ceased to look for some new application that would not only gratify my natural disposition and love for experimenting, but would make photography more serviceable to the world about me."

With this brief introduction, Mr. Faris called the attention of his auditors to a new use to which photography could be applied, and by means of which the art could advance the interests of both commerce and trade. He then distributed examples of the work referred to, and said these pictures were obtained by making negatives from the crystallizations of various salts on glass surfaces, and finally printed and finished by the Meyzenbach process. The variety and singular characteristics of these crystallizations were greatly admired, and many suggestions were made respecting their utility.

Mr. Faris said: "In discovering how these crystallizations could be made both useful and attractive, I have spent no small amount of time and labor, and now that my ideal has been reached, it only remains to establish their commercial value. In my judgment, this new phase of photography can be utilized in various ways; but the indisposition on the part of most people to turn aside from the beaten path is perhaps its greatest obstacle. But whether my labor shall prove to be a commercial success or not, I feel I have been liberally paid; for these experiments have often beguiled an idle hour, banished from my con-

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sciousness the ills attendant upon the infirmities of age, and contributed to intellectual powers a wholesome stimulant only attainable while in the pursuit of an object we are most anxious to possess.

The Field Day Committee appointed at the regular meeting, May 7th, reported that no definite time and place had as yet been fully decided upon, but it was expected a decision would be reached in time to notify the Section at its next meeting.

The meeting then adjourned.

PACIFIC COAST AMATEUR PHOTOGRAPHIC ASSOCIATION.

AT the regular monthly meeting of the Association, held May 9th, *President* E. M. RUNYON occupied the chair, Major HEUER acting as *Secretary pro tem.*

The Committee on the exhibition of "Illustrated Boston" made an interesting report. Over seven hundred people had filled the hall of the Association of California Pioneers. Every seat was occupied, and many had been turned away, because there was not even standing room left. The audience had been highly appreciative, and as there were many Bostonians present, scenes familiar to them were greeted with applause.

The Committee on the preparation of the slides and the paper to illustrate and describe "Glimpses of California" reported some progress. The work had been completely mapped out; and so soon as gentlemen having certain negatives would send in slides and prints of them, the collection would be completed and the lecture ready for delivery. Negatives of those subjects not possessed by the Society were being made. In one instance a gentleman had volunteered to secure a negative of the San Diego Mission, the first settlement of the Spanish missionaries in California. This offer will be appreciated when it is understood that to do this means a trip of five hundred miles.

At the conclusion of the business of the evening, which included the naming of committees and the appointment of Corresponding Secretary for the ensuing year, Dr. Max Boelte prefaced the exhibition of Dr. Piffard's new dark room lamp by remarks upon the various experiments of Burton, Vogel and others towards securing a safe light for the dark room.

Various negatives were exhibited which had been developed after long exposure to the flame of the lamp. They were without trace of fog, while other negatives exposed under similar circumstances to other dark room lights were quite badly fogged.

The construction of the lamp is very simple, consisting of a Bunsen burner, around the tube of which and projecting at the top is placed a cylinder of asbestos and sodium. The supply of air is regulated by a simple valve underneath until the flame is seen to be entirely non-actinic or free from blue rays. To improve the lamp and for further protection an amber colored chimney is used. To those amateurs fortunate enough to have gas in their dark rooms this lamp will be a blessing.

The Doctor also exhibited the Piffard Flash Lamp. It somewhat resembles an argand burner in appearance. The principle is so simple that one wonders it has not suggested itself to every one making flash-light pictures.

An air pressure bulb is attached by a rubber tube to a cylinder. In this cylinder is placed a piston containing a lighted punk. Over it is a stand holding the magnesium powder spread on gun cotton. A pressure on the bulb forces the lighted punk into contact with the cotton and complete ignition of the powder results.

Dr. A. P. Whittel, a corresponding member of the Society, recently described in a very interesting letter his trip to Europe by way of Panama. His letters of introduction from the President of the Pacific Coast Amateur Photographic Association were presented to the English Societies and he met with a most cordial reception. This suggests that whenever a member of a Society is about to travel he should request from the officers of his Association general letters of introduction. Such endorsements when presented cannot but result in pleasant acquaintances, aside from the use of dark room privileges. Speaking for our own Association, I can say that should the readers of this bring letters or introduce themselves to our Secretary, Mr. G. Knight White, 89 Flood Building, San Francisco, they will be cordially welcomed.

To conclude the evening a number of interesting foreign slides belonging to a private collection were thrown on the screen. Among them was a slide of the new cruiser, "Charleston," taken as she was on her way to Santa Barbara Channel for her trial trip.

A. J. TREAT, *Corresponding Secretary.*

CINCINNATI CAMERA CLUB.

THE first meeting of the month was held at the rooms of the Club Monday evening, May

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6th, Mr. BULLOCK in the chair. In the absence of the Secretary the minutes were omitted and Mr. Kelley appointed Secretary *pro tem.* One new member was elected. A motion prevailed as the sense of the Club that its interests would be best subserved by a declination of prizes of money value to members for work done on the annual excursion. A suggestion was adopted that the Excursion Committee offer diplomas for two or more grades of work done on the anuual excursion, and that prints of the same be framed and hung in the Club rooms with proper mention.

Mr. BULLOCK, after addressing the Committee on the work expected of them, read a paper on composition generally and the duties of the Exhibition Committee specifically, especially with reference to lantern slides. The paper was intelligently and carefully prepared, and was well received, although not concurrently. The subject started a lively discussion, and more may be expected from it. The reports of Treasurer and Librarian showed the Club to be in general good condition; forty-five new members received during the year, making a total to date of one hundred and eighteen.

At the close of the meeting refreshments were served to the members and their friends, making the evening one of pleasure as well as profit.

The second meeting of the month, May 20th, opened with the President and Secretary in their places. Two members were elected.

The Excursion Committee stated their arrangements for the outing on May 30th.

Mr. KELLEY read a paper following the papers of Messrs. Johnson and Bullock at previous meetings. Mr. Bullock had maintained that general interest in the picture should determine whether it should be publicly exhibited. Mr. Kelley, not ignoring the interesting, thought that selections should be governed by the technical and general excellence of the photograph as well. These papers provoked a good-natured and desirable discussion. Dr. LEBOUTILLIER followed, advancing the merits of pictures with life in them, because they were apt to meet applause. Mr. FISHER advanced novelty as a very desirable feature. Mr. PECK heretically advanced the view that, as we cannot all be great artists, if the photograph is good and the maker and his friends are satisfied with it, it ought to be accepted. Mr. JOHNSON, not disputing any one, thought that the exhibitions each year should show study and improvement as to general excellence. The Chairman of the Exhibition Committee rose to motion the thanks of the Club to Mr. Kelley and the members taking part in the discussion, giving assurance that each and all the ideas advanced would be considered in their selections. The Chicago slides were shown at the close of the discussion, following which Mr. Prince gave practical demonstrations with positive films. Mr. Bullock also showed samples of his work with same.

At a late hour the meeting adjourned.

H. C. FITHIAN,
Corresponding Secretary.

ST. LOUIS CAMERA CLUB.

MAY 7, 1889.

President BAIN with twelve members present.

The minutes of the last meeting were read and approved as read.

Secretary BUTLER—The report from Mr. Collins, the special committee of one to procure a charter for the Club, is as follows:

To the St. Louis Camera Club:

The undersigned, having been designated by your President as a committee of one to procure a charter for this organization, respectfully reports that in the name of the three principal officers of the Club he applied to the Circuit Court, City of St. Louis, for such charter, in due course obtained a *pro forma* decree of incorporation, had the same filed in the office of the Recorder of Deeds for the City of St. Louis, State of Missouri, and in the office of the Secretary of State for the State of Missouri, and that the Secretary of State has issued and delivered to the undersigned a certified copy of all the above mentioned papers, together with a certified copy of the Constitution and By-Laws of this Club, which under the State of Missouri constitute the charter of this Club.

The papers constituting the charter of this Club are herewith submitted.

Respectfully,
ROBERT E. COLLINS.

Upon motion of Fr. Charropin a vote of thanks was tendered Mr. Collins for his personal exertions in procuring the charter for the Club.

President BAIN—We would like to hear the report of the May Field Day Committee.

Mr. BALL—The report of the May Field Day Committee is as follows:

Last year the Club used for the May Field Day excursion a coach belonging to some hunting and fishing club, but this year I could not

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find out where it was, but if the members wish me to investigate any further in that direction I will try again and see if I can succeed in finding it. It will hold, I think, about seventeen persons, and Mr. Arnot said that he could let us have a wagonette if we needed it, that would hold about as many more. I also found that we could go to Valley Park, on the Frisco road, for seventy cents for the round trip; and that we can get a coach on the Colorado Railroad to go out on the regular train to Port Royal, on the Missouri River, and there meet an engine to take us anywhere on the road we wished until the time of the regular train to take us back to St. Louis. We can get this coach and engine for $50, and I think we can get a greater variety of views on the Colorado Railroad than any of the other places.

After a discussion on the part of a number of the members, Mr. Jewett moved that the Committee which had already been appointed for the purpose be authorized to communicate with the members of the Club by circular or otherwise, to give the members a chance to express their opinion, and that then the Committee be empowered to decide upon the place and time for the excursion and make the necessary arrangements.

Motion was carried.

An application for active membership from Mr. Harry L. Bauer was read and referred.

After balloting, etc., Messrs. Henry Hitchcock, Jr., Frank J. Hickman, Malcolm H. Elllis, Fred. G. Howe, George B. Compton and Charles S. Moffitt were all unanimously elected to active membership.

Upon motion of Mr. Butler the Lantern Slide Committee were authorized to make all the necessary arrangements to prepare a set of slides with lecture to be called "Pictorial St. Louis."

Upon motion of Mr. Butler it was decided to have a printed list of all the subjects of which negatives for Lantern Slides for the above exhibition could be made, and to send a list to each member of the Club, requesting him to advise the Committee which negatives he could furnish the Lantern Slide Committee.

The meeting adjourned at 9.35 P.M., after which the slides known as "Illustrated Boston" and the slides of the Philadelphia Club were exhibited.

W. M. BUTLER,
Secretary.

CASE SCHOOL CAMERA CLUB (CLEVELAND).

AT a special meeting of the Club held Friday afternoon, May 24th, Lafayette D. Vorce took a composite photograph of about ten or twelve of the students. His plan was to stretch a wire with a knot on it and have each student in his turn sit so as to have the knot come on the bridge of his nose. Owing to the want of a good head-rest the resultant picture was not all that could be desired. This will most probably be the last meeting of the season, as examinations will soon take place.

MILTON B. PUNNETT,
Corresponding Secretary.

Bibliography.

NATURALISTIC PHOTOGRAPHY. By P. H. EMERSON, B.A., Etc. New York: E. & F. Spon, Publishers.

This is a handsome small octavo volume of about 300 pages, well printed on fine paper and artistically bound in white linen with black lettering and red lines. These combinations of the bookmaker's art are entirely in keeping with the goodly contents of the treatise within.

In his introductory chapter the author says: "We propose in this book to treat photography from the artistic standpoint. We shall give enough science to lead to the comprehension of the principles which we adduce for our arguments for naturalistic photography, and we shall give such little instruction in art as is possible by written matter; for art we hold is to be learned by practice alone. * * * The photographic student, whose aim is to make pictures, will find in this book all directions, such as the choosing of apparatus, the science which must be learned, the pictures and sculpture which must be studied, the art canons which are to be avoided, the technique to be learned, including all manipulations," etc.

What the author states above has been most faithfully carried out. There are few books on photography that have appeared recently which are written as plainly and as carefully as the one before us. The author is not only an artist, but an indefatigable worker in the studio, field and dark room. He knows whereof he speaks, and his readers feel that they have a guide who knows the way from having personally followed the route which he indicates as best for others. The book is excellent in more ways than we can now express; and we can only give our readers a small idea of many good things it contains.

After several introductory chapters on such subjects as the terminology of art and photography and the phenomena of sight as applied to art, the author discusses: Photographic technique and practice, such as camera, tripod, lens, dark room, studio and

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furniture. focusing, exposure, development, retouching, printing, enlargements; together with mounting, exhibiting, etc. In the artistic part he speaks of educated sight, composition, out-door and in-door work, hints on art and decorative art.

In the above few lines we have indicated the scope of the work, and any photographer who cares anything about his art other than mere bread-winning will find the volume full of practical suggestions that will delight him, and show the steps to a higher level in artistic photography.

THE CHEMISTRY OF PHOTOGRAPHY. By Raphael Meldola, F.R.S., etc. New York: Macmillan & Co.

The volume before us is the result of a series of lectures delivered by the author at the Finsbury Technical College, in London. It is a small octavo of about 370 pages and thoroughly well written. Unlike most writers upon this important subject, the author has adhered closely to the matter embraced in the title of the volume, and the result is one of the best books of the kind we have ever read. In the first place, the author is a thoroughly good chemist, well up with the advanced phases of photography; and secondly, he has all the force and vigor of an accomplished lecturer, with demonstrations that drive home the truths he wishes to inculcate.

We have read the volume from cover to cover; we have enjoyed the clear style of the author, and have seen the most intricate problems of photography discussed with a force totally unlike anything hitherto presented. We wish we had space to present our readers with extracts from this exceedingly valuable work; it must suffice to give a few of the topics discussed.

In these lectures the author speaks about: photo-physical and photo-chemical changes, embracing iron, copper, mercury, uranium, gold and platinum salts; the silver haloids, Carey Lea's photo-salts; the action of sensitizers; the collodion process; collodion dry plates; emulsion photography; collodion and gelatine emulsions; the process of ripening, sensitiveness of the silver haloids; the latent image; theory of developers; collateral phenomena of development; reversal of image or solarization; colors of natural objects; photo-chemical decomposition and absorption of light; photography of red rays; orthochromatic photography; fixing agents; intensification; reducing the image; printing; emulsion prints; toning; platinotypes, and a number of other minor topics.

We strongly recommend this volume to our readers, and believe it to be the best book of the kind in the English language.

What Our Friends Would Like to Know.

N. B.—We cannot undertake to answer questions of a technical character except through the columns of the BULLETIN. *Correspondents will please remember this. No attention will be paid to anonymous communications.*

Q.—W. S. E. writes: Will you please inform me through your columns of the BULLETIN how to make lemon of tartar? I bought some from an agent once; it was already prepared; I used it for taking albumen and foreign matter out of silver bath. The moment the tartar is put into the bath it brings the albumen and foreign matter to the surface as a scum which can be filtered out. Before I got this I had to evaporate my silver bath very often, but this purifies it alone. I have used the same bath about eighteen months and have not evaporated it during that time. I also use it in the toning bath, which gives a beautiful brilliant tone.

A.—We have heard of this material before. The name is a misleading one; there is no chemical substance that we know of that goes by that name. Send us a small sample and we will tell you what it is. We fear it is some simple remedy, already well known, that these agents peddle to unsuspecting photographers at high prices. Let us have a sample. An analysis will soon teach us what it is and we will inform you about it.

Q.—J. H. A. writes: Is it not a fact that a well-timed plate requires a much stronger developer, both in pyro and soda, than one slightly under-timed; and, at the same time, requires one-fourth the time to develop? About how long should it take to develop a well-timed plate with a developer properly mixed for the best effect, provided the light is all right? Why is it that I cannot get a bold, brilliant print from a negative of medium intensity—one that will print in bright sunlight in about two minutes? My bath is 50 grains strong, just alkaline; would it suit these negatives better if it was weaker or stronger? Is it advisable to use a 4-inch retouching glass all the time for retouching, and is it injurious to the eyes? Where can I obtain a Decoudan photometer and how much does it cost? I know a fine workman who says paper cannot

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be fumed too long for him. He often fumes all night, and says it cannot print too blue for him. What is your opinion about it? Could it be that he uses an acid bath? I have used the following pyro developer for some time and find that it works better when it is new. It is claimed that it keeps indefinitely:

Sulphite	6 ounces.
Pyro	1 ounce.
Sulphuric acid	1 dram.
Water	80 ounces.

Would an increase in the quantity of the developer make up for old age, when it fails to develop as intense as when new?

A.—An undertimed plate requires a little different handling from one properly timed. The undertimed plate will generally need the stronger developer, but this depends upon the kind of plate used; a very sensitive plate will fog with a strong developer before you have a chance to bright out the picture. It is always better to go slowly at first, using a weak developer, in both pyro and soda, and with an undertimed plate finish in a strong developer in another dish. Of the two, the properly timed plate will develop more quickly than one undertimed, using the same precautions; but the difference of time is a matter of difference of exposure. A well-timed plate should be developed in from one to two minutes. Bold, brilliant prints are only obtained from first-class negatives, where the image is without stain and the lights and shadows are properly graded. This depends upon both exposure and development being well managed. Your bath appears to be the right strength, but would work better if just acid. We don't think a good retouching glass hurts the eyes while being used; its function is to assist them. Write to our publishers about the photometer; they will import it for you if not obtainable here. Long fuming does not hurt the quality of prints; it makes them usually of a much darker tone than short fuming. The pyro developer you give formula for will not keep unless the bottle is kept well corked, and then no great length of time. It is better to make a strong stock solution and dilute when needed. Try the mixture you give with only 20 ounces of water; this will keep many months in good condition. You only need to dilute with three volumes of water to have your regular developer.

Q.—A. J. F. writes: I use a Darlot wide-angle lens which covers a 6½ x 8½ or 8 x 10 plate, according to diaphragm, and I want to take pictures of parties, groups, etc., by flash-light at night. 1. Is my lens suitable? If so, what sensitometer plate should I use? 2. How much magnesium powder should I use in a good sized parlor? 3. And how much in a large hall or theater? 4. What do you consider best lamp to set off powder for instantaneous work? 5. In taking instantaneous views in parlors is one light sufficient? 6. And would it be necessary to use two lamps in hall or theater?

A.—A wide-angle lens is not suitable for this work, unless it covers a plate at least a size larger than the one in use. Use plates of about 25 degrees Warnerke, or say 50 on Cramer's scale. Thirty grains of magnesium powder in two charges, at different positions in room, is about right. In a large hall you may have to use an ounce of powder in six or eight charges. The best lamp for small groups is called the Mize Flash Lamp; for large halls, etc., it is better to use the Reeves Lamp. The number of lamps would depend upon the number of charges.

Q.—M. L. M. writes: Beaumé's hydrometer is spoken of in the BULLETIN. Which scale is used in testing developing solutions and other photographic chemicals? I saw a scale marked as follows: Beaumé's scale for acids, Temperature, 60° F., 70-60-50-40-30-20-10-0, the latter figure at top. Is this the one I want, and which is spoken of in your magazine? On page 208 of BULLETIN, in the formulas of pyro and hydroquinone given by D. Bachrach, Jr., no proportions are given. What are they?

A.—There are two Beaumé scales for hydrometers—one with the zero (0°) at the top, used with *heavy* liquids, as acids, etc., also for developers; the other scale has the zero (0°) at the bottom, and is used for *light* liquids, as alcohol, benzine, oils, etc. The heavy scale is the one most useful to the photographer for his developing and other solutions. Mr. Bachrach is the only person who can answer your last question, and may kindly do so.

Q.—"One of your oldest subscribers" writes: When a negative is forced with hydroquinone developer it generally leaves it of a yellow color. Can you tell me how to remove this yellow stain? I have tried citric acid and alum, and alum alone; but they seem to have no effect upon it whatever, and I have lost some valuable plates (transparencies) by being unable to remove this yellow color. Please try and help me out.

A.—Try alum solution, with about 1 dram of pure hydrochloric acid in a quart of solution.

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Views Caught with the Drop Shutter.

MR. G. CRAMER, the well known plate manufacturer, gave us a call the other day on his return from Europe. His health, we are glad to note, has greatly improved, and we hope to see his genial face with us at the Boston jubilee. Mr. Cramer has taken to athletics, and, we hear, has become quite expert. Our friend Stuart, at Hartford, and the other athletes of the Photographers' Association of America, should go into training at once, or they will feel very mild at Boston, in August, if G. Cramer should engage with them; but then he is too genial a spirit to hurt any one, and there are hundreds who, with us, are ready to welcome him home.

T. H. MCCOLLIN, the well known Philadelphia merchant, was married recently, and sailed for Europe on his bridal tour on May 25th, in the Cunarder "Etruria." We wish the happy couple a pleasant journey and safe return.

W. B. BRADY, one of the earliest workers in photography, after some years of retirement, is again going to take up the photographic art, and will open a new studio at Pennsylvania avenue and Thirteenth street, Washington, D. C.

SCHAFFER BROTHERS, of Poughkeepsie, have opened a new photographic and art studio on Main street, in that city. Their exhibition room is 64 x 70 feet, and the walls are hung with portraits, crayons, etchings, artotypes, etc. The operating room is the largest in the city, 50 x 21 feet, and has a skylight of ground glass 18 x 16 feet. The store-room for negatives is 35 feet long, and corresponding dark rooms are provided. This is certainly one of the best studios along the Hudson River, and we wish the Brothers Schaffer every success.

L. W. CLARKE, recently employed at Eastman's studio, Portland, Oregon, committed suicide on May 5th by shooting himself. No immediate cause can be assigned as a reason for his rash act. He leaves a wife and two children.

WE understand that our note about MORRIS EARLE & COMPANY, in the last issue of the BULLETIN, was incorrect; the firm is still W. H. WALMSLEY & CO.

IN the *Amateur World*, of Philadelphia, we note three excellent portraits of the members of the enterprising firm of BUCHANAN, BROMLEY & CO., with biographical notices of each. The stories of their early lives show these gentlemen to be well fitted for the work of the successful photographic merchant.

MISS LOUISE BARRON FREDRICKS, the daughter of Mr. CHARLES D. FREDRICKS, the well known New York photographer, was married to Mr. J. Price Warrick on June 4th, at Trinity Church, Newark, N. J. The happy couple have our best wishes.

WOODARD, CLARKE & CO., of Portland, Oregon, send us their handsome catalogue of 200 pages, containing all the latest apparatus, even the Phantom and Lilliput cameras of our publishers. It is well printed and finely illustrated, and speaks well of the enterprise of the Portland merchants.

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The International Annual

OF

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VOL. II, FOR 1889.

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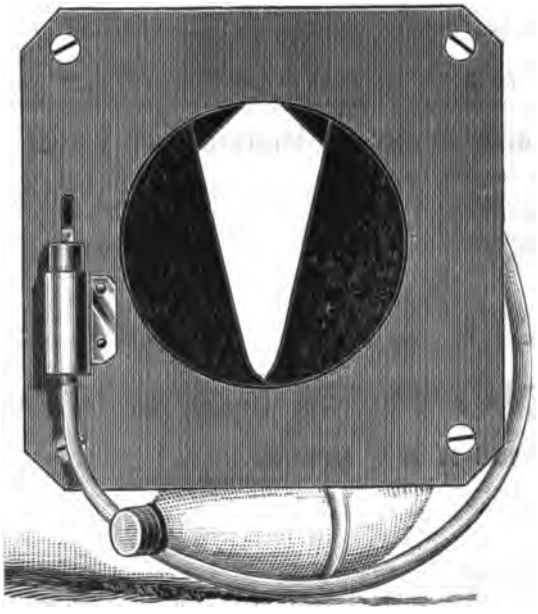
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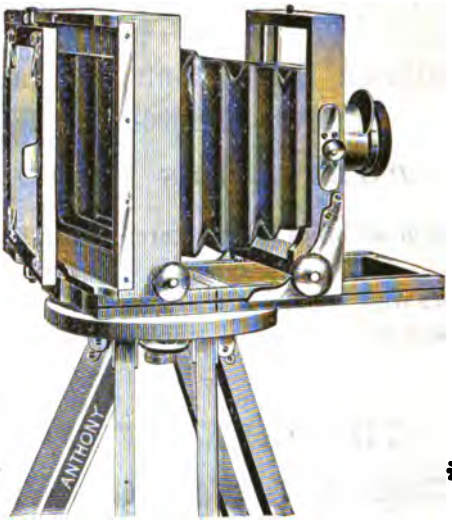
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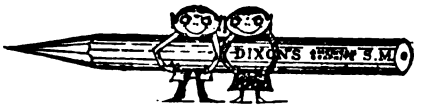


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The results attainable with this lamp are simply astonishing; it will illuminate the largest sitting-rooms, so that the smallest details at furthest end of room are well defined on negative. The flash being so large and well diffused there are no sharp shadows; for the same reason the light is not so trying on the eyes as when the flash proceeds from a point, as with the explosive compounds.

FULL INSTRUCTIONS INCLOSED WITH LAMP.

Price complete, including rubber tube and bulb, wicks, etc., - - - $3 00

SOLE AGENTS,

E. & H. T. ANTHONY & CO., 591 Broadway, New York.

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IS not only dangerous in the loss you sustain, but you miss a genuine good treat.

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We print more pages of reading matter in each issue than any other photographic magazine published in the world.

The subscription price is but **$3** per year, and pronounced by a large number worth double that amount.

Every number contains one or more illustrations produced by some of the photo-printing methods.

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ARTISTS' MATERIALS, FRAMES AND ALBUMS,

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POSSESS QUALITIES FOUND IN NO OTHERS.



EXTREME ANGLE PERISCOPE,
Aperture F-10. Angle 115°.

RAPID SYMMETRICAL PERISCOPE,
Aperture F-8,
For Portraits and Instantaneous Views.

DETECTIVE CAMERA LENSES.

Write for Price Lists.

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No. 238 FARNHAM STREET, OMAHA, NEBRASKA.

Having a full supply of Photographic Materials, I can furnish Photographers with stock at *nearly Chicago prices*, it also being a saving of four days' time.
Having the experience of nearly thirty years, and keeping the best of help in all branches, I can retouch, print and burnish cards, for the trade, at $1.25 per dozen. All work in proportion. E. L. EATON.

THE AIR BRUSH



APPLIES any dilute liquid pigment by jet of air. Work is far more rapid than crayon; equally artistic. Adopted by hundreds of the best portrait artists in the United States. Gold Medal Franklin Institute; Special Medal American Institute.

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THE EYE

DEVOTED TO

Art, Photography and Literature.

CONTRIBUTIONS FROM THE BEST WRITERS.

EVERY PHOTOGRAPHER should subscribe for this newspaper, as it is published in the interest of the fraternity. **The most thoroughly independent Photo Journal in America.** It is not controlled by any Photographic Stock House. **The best medium for Advertisers in the United States**—be they Stock Dealers, Dry Plate Manufacturers, Photographers, Operators, or, in fact, any one having anything to bring to the notice of a Photographer or an Employee.

RATES AS MODERATE AS IN ANY JOURNAL.

Advertisements in "**Want**" or "**For Sale**" **Columns** from **Fifty Cents,** for four or five lines for two insertions; **Twenty-five Cents** for subsequent insertions. Many large Galleries have been sold through the medium of THE EYE during the past year.

Price of SUBSCRIPTION, payable in Advance.

One Year, - - - - - -	$2 50
Six Months, - - - - -	1 25
Three Months, - - - -	75

All Advertisements should be received by Friday morning. **Make all** Drafts, Checks, Express Orders payable to C. GENTILE. All Advertisements for Want Column must be paid in advance.

OFFICE OF THE EYE,

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THE LATEST.

ANTHONY'S

CLIMAX NEGATIVE FILMS,

TRANSPARENT AND FLEXIBLE.

For Portraits, Landscapes and Drop Shutter work. **Weight and Space reduced to a minimum.** Fourteen dozen Films weigh less than one dozen Glass Plates. They are developed in the same manner as Dry Plates. They reduce halation. They can be printed from either side of film.

ANTHONY'S CLIMAX NEGATIVE FILMS are made upon a substance of recent discovery, which is admirably adapted to the manufacture of a **Perfect Negative Film,** combining **Transparency, Strength** and **Toughness of Composition,** which renders them capable of being made so thin as almost to eliminate the question of weight and bulk in carrying. They are made with a **fine mat surface,** which **reduces halation,** and are **perfectly impervious to water.** Can be sent by mail without danger of breakage.

PRICES PER DOZEN.

3¼ x 4¼,	$0 65	5 x 7,	$1 65
4 x 5,	95	5½ x 7,	1 75
4¼ x 5½,	1 12	5 x 8,	1 80
4¼ x 6½,	1 30	6½ x 8½,	2 50
4¾ x 6½,	1 40	8 x 10,	3 60

All larger sizes made to order only, at fifty per cent. additional to price of plates.

Postage extra.

A TRIAL OF THESE FILMS WILL DEMONSTRATE THEIR PRACTICAL VALUE.

FOR SALE BY ALL DEALERS.

MANUFACTURED BY

E. & H. T. ANTHONY & CO.

591 BROADWAY, NEW YORK.

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ABOUT N. P. A. ALBUMEN PAPER.

OUR friends will recollect that about a year ago we invited all the photographers of the country to send us any criticisms or suggestions they might desire to make on this excellent Albumen Paper, that we might send them to the manufacturer, whose aim it was to make it *as perfect as it was possible to do.*

The Paper seems to have given such entire satisfaction to the most eminent photographers in the country that we believe but one suggestion was received, which was promptly forwarded to Dresden.

This is the most *satisfactory* evidence of the superiority of the Paper, and is of more value to guide photographers than if we were to advertise on our own account that it is "ahead of anything in the world."

We certainly believe that it is better than any other, in the *chemical preparation of the Albumen* and in the care with which the first quality is *selected.* It is very easy to make paper a few dollars less expensive to the ream by leaving in defective sheets, but it is *not really cheaper to the photographer.*

The next important point for the photographer to know is how he can be *sure* he gets the right paper in these days of counterfeiting brands. He will be sure in this respect by looking *through* the paper for the *water mark* N. P. A., *which cannot be counterfeited;* while a *brand,* as we said last year, can be put on "while you wait."

The *best is always the cheapest,* when you need it to *use;* though it may not be, if you merely wish it to *sell.*

Photographers will find that some parties will charge them the same price for *inferior papers* that they do for the N. P. A., and will try to persuade them that the other is "just as good." It *is* just as good—and better, too—for them to *sell,* because they make more profit on it; but the photographer who *uses* it will not find it so profitable as he who *sells.*

E. & H. T. ANTHONY & CO.,

591 Broadway, New York.

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CLIMAX

Enlarging, Reducing and Copying Cameras.



WHEN ORDERING, PLEASE SPECIFY NUMBER AND SIZES OF KITS WANTED.

PRICES.

Size, 6½ x 8½, - - - -	$27 00	Size, 10 x 12, - - - - -	$45 00
" 8 x 10, - - - - -	30 00	" 11 x 14, - - - - -	55 00

8 x 10 Size only kept in Stock. Other Sizes Made to Order.

The form of construction of this new camera is made apparent by the illustration here shown. The experienced copyist will not need any such simple directions for use as we append.

An important feature in this camera, that is found in no other, is, the center-board with lens can be used in the end of the camera, converting it at once into an extra long copying camera. This will be found very advantageous in enlarging small pictures by one operation.

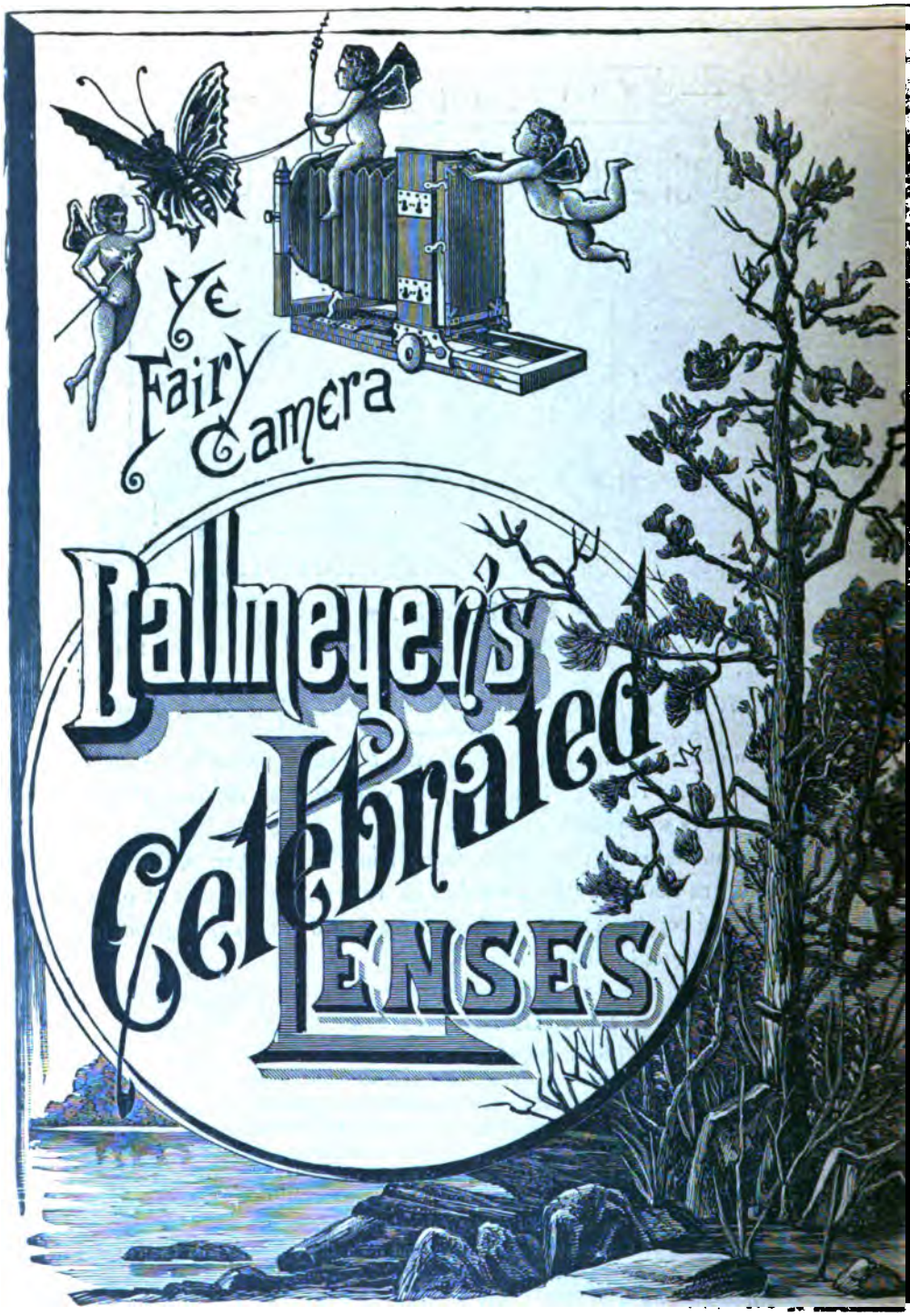
DIRECTIONS * FOR * USE.

To copy a negative in the natural size, place it in the kit on the front of the camera and button it in. Attached to the center frame of the camera is a division upon which, on the side toward the camera front, a lens is mounted. Suppose this to be a quarter-plate portrait lens, the focal length of which we will suppose to be 4 inches; draw back the center frame and the lens twice the focal length of the lens (8 inches); slide the back frame with ground glass the same distance from the center frame. To enlarge with the same lens to eight times the size of the original, the center of the lens must be 4½ inches from the negative, and the ground glass be 36 inches from the center of lens. To reduce in the same proportion, reverse and have 36 inches from the center of the lens to the negative, and from the center of lens to ground glass 4½ inches.

For Table of Enlargements, see page 23, General Catalogue.

E. & H. T. ANTHONY & CO., 591 Broadway,
NEW YORK.

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For the Amateur and the Professional

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Vol. 20. June 22, 1889. No. 12.

ANTHONY'S Photographic BULLETIN





Edited by
PROF. CHAS. F. CHANDLER, Ph.D. LL.D.
Prof. of Applied Chemistry in the School of Mines,
COLUMBIA COLLEGE, NEW YORK CITY.

E. & H. T. Anthony & Co.,
591 BROADWAY
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THE

LILLIPUT CAMERA

— IS THE —

WONDER OF THE DAY.

People marvel as to HOW we do it.



IT IS A FACT!!

WE SUPPLY A

HANDSOME SOLE LEATHER DETECTIVE CAMERA

—WITH—

6 Patent Double Holders;
Non-actinic Lamp;
108 First Quality Dry Plates, 2½ inches square;

FOR $25.

A Few Reasons why you should Buy a Lilliput.

Because of its compactness and beauty; its unlikeness in appearance to a Camera, yet being one with which you can photograph anything that could be done with any other Camera.

That you can make pictures with it unequaled by any other method; also you can finish at any time *one* or more negatives, and see precisely what results you are obtaining.

The Plates are INEXPENSIVE, EASILY HANDLED and MANIPULATED by any one.

It can be used for either INSTANTANEOUS or TIME exposures.

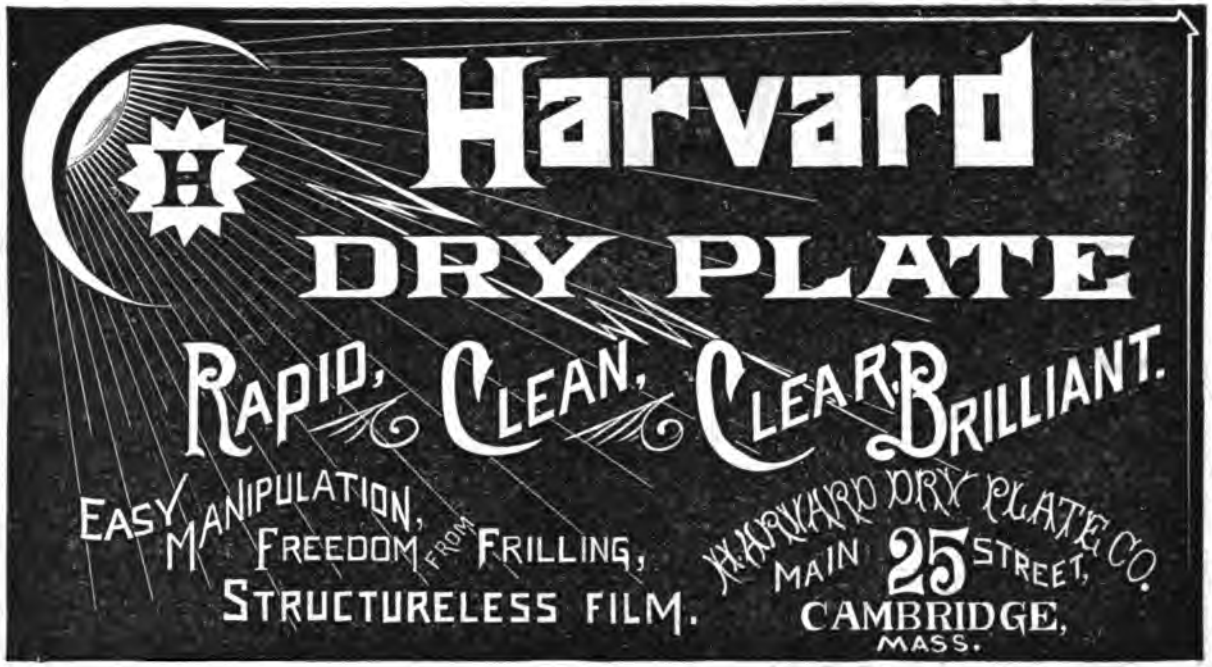
These Negatives can be Enlarged to any Size Required.

ILLUSTRATED BOOK OF INSTRUCTIONS WITH EACH.

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Chlor. Gold, Nitrate Silver, Pyrogallic Acid, Oxalate Potash, Ether, Cyanide Potassium, Sulphite Soda, Carb. Potash, Carb. Soda, Meta-Bisulphite Potassium,

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The ONLY American make and SUPERIOR TO ANY OTHER,

AND A FULL LINE OF PHOTOGRAPHIC CHEMICALS.

ORDER THROUGH YOUR DEALER. If your Dealer cannot supply you, order direct.

CYRUS PROSCH'S NEW SHUTTERS.

PROSCH RAPID,

DUPLEX STEREOSCOPIC,

DUPLEX DETECTIVE,

DUPLEX TRIPLE IMPROVED.



DUPLEX WITH SILENT TIME.

The Prosch Rapid is capable of making exposures so rapid as to test to the utmost the skill of the most expert operators to develop. It is only for instantaneous work, such as taking horses at most rapid gait; athletes running, jumping; divers, etc., etc. Although operating between the lenses it is entirely different from the Duplex. Made in two sizes: No. 1, 1-inch opening, price, $18; No. 2, 1¼-inch, $22.

The Duplex Stereoscopic fills perfectly the want of a time and instantaneous shutter for Stereoscopic work. It consists of two Duplex Shutters on one frame, operated by one lever and one release, and consequently gives two identical exposures. Made in two sizes: No. 1, ¾-inch opening, $18; No. 2, ⅞-inch opening, $19.50. Lenses are arranged at 3¼ inches from centers; but this will be increased, if ordered, up to 3¾ inches for $1 additional. Rotary Stops, $2; Flange Collars, when required, 75 cents. Silent time attachment, $1.50; combined with slow instantaneous, $3.

The Duplex Detective is a reliable, compact and efficient Shutter for Detective Cameras, which can be used for both time and instantaneous work. Release for instantaneous is by a push trip (pneumatic if desired). Time exposure mechanism is same as silent self-setting time to regular Duplex Shutters, by which instantaneous exposures can also be made by pressure to pneumatic bulb. Price, including fitting to Camera and Rotary Stops, $15.

THE EVER POPULAR DUPLEX SHUTTER still retains its lead of all others, whether of home or foreign production. The Rotary Stop is considered by an army of users an indispensable adjunct to the shutter, likewise the silent, self-acting time, and slow instantaneous attachment, which operates shutter by direct pressure of air through pneumatic device.

DUPLEX ENLARGED REVISED LIST.

Numbers.....	00	0	0A	1	1A	2	2A	3	3A	4	5	6	7
Openings, inch...	⅝	¾	1	1⅛	1⅜	1⅝	1⅞	2⅛	2	2¼	2½	3	3½
Price.....	$11.50	$12	$12.50	$13	$13.50	$14	14.50	$16	$19*	$20*	$22*	$24*	$27*

* Including silent time attachment.

Rotary Stops up to No. 1, $1.50; above that, $2. We do not make Rotary Stops for sizes larger than No. 2A, except by special agreement. Silent time attachment same prices as Rotary Stops.

When Flange Collars are required, as on Ross and other lenses similarly mounted, 50 cents extra. Shutters can be furnished for most standard lenses, fitted ready for use, but it is to customer's interest to forward his lens tube with order, otherwise perfect fit is not guaranteed. These shutters are owned and manufactured solely by the Prosch Manufacturing Co. None genuine without our stamp. Circulars containing full information forwarded on application.

PROSCH MANUFACTURING CO.,

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THE STODDARD

Combination Plate and Film Holder.

The only perfect Plate Holder ever devised.

Glass, Paper and Celluloid Films used interchangeably with equal facility in the SAME HOLDER.

ONE DOZEN GLASS PLATES pack in a space 2½ INCHES THICK, and 34 inches larger than the dimensions of the plate.

TWO DOZEN FILMS pack in a space 3 INCHES THICK, and 34 inches larger than dimensions of film.

No turning a crank, winding a reel or cutting in the dark.

Shields carried in a neat canvas case, so devised that it is IMPOSSIBLE TO EXPOSE THE SAME PLATE TWICE.

LIGHTENS THE WEIGHT OF THE CAMERA by dispensing with the ground glass and its frame.

The CHEAPEST Plate Holder on the market.

We haven't time to tell you more about it now, but will explain further and give cut in next issue; meanwhile it will cost you but a cent to send for full description.

We will have something new and original in cameras next month.

Look out for our ads.

E. L. ELLIOTT & CO., Auburn, N. Y.

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THE CHEAPEST MACHINE FOR THE FAMILY BECAUSE IT IS

The Easiest to Learn,
The Handiest to Manage,
The Lightest Running,
The Least Noisy,
Made of the Best Materials,
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THE MOST DURABLE
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DOES PERFECT WORK.
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Have the Most Complete and Perfectly Appointed

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in the country, where they will be pleased to receive and welcome their hosts of friends and customers. Their entirely new and carefully selected Stock comprises the Apparatus, Cameras, Lenses, Dry Plates and Films of the leading manufacturers of this country and England. NO OLD STOCK.

Their *Chemicals*, specially put up for them, are guaranteed PURE.

Among their specialties are :

Walmsley's "Autograph" Pyro and Hydrokinone Developers.

Walmsley's Autograph Silver Intensifier.

Walmsley's Autograph Sensitized Albumen and Ferro-Prussiate Papers.

Walmsley's Photo-Micrographic Cameras.

Full particulars of the above and of their entire stock in Illustrated Catalogue. Mailed FREE.

W. H. WALMSLEY, Limited,
1022 Walnut Street, Philadelphia.



BEST OF ALL

The New Boston Reversible-Back Cameras.

Combining the advantages of other makes with the latest improvements. The finest material and finish. Light and rigid. Superior Swing-Back Movement.

PRICE LIST.

5 x 7.	Single Swing	. . . . .	$28.	
5 x 8.	"	"	30.	(Interchangeable Backs.)
6½ x 8½	"	"	30.	
8 x 10.	"	"	34.	

Double Swing supplied when desired at $2 additional.

THE HAWK-EYE

DETECTIVE and Combination Camera.



Price, $15. Size of Pictures 4 x 5 inches.

AS A DETECTIVE CAMERA.—The HAWK-EYE has the quickest adjustment of speed and focus for instantaneous pictures of moving objects under varying conditions.

AS A VIEW CAMERA.—The HAWK-EYE may be set up on a tripod for time exposures. It is provided with interior ground glass, detachable cover to back, and screw pinion movement controlling the bellows. No focusing cloth is required.

AS A MAGAZINE CAMERA.—The HAWK-EYE will be supplied with an attachment containing a coil of sensitized film sufficient for **100 exposures** without reloading, for **$10 extra**, or **$25**; placing **Photography within the reach of all**, it being only necessary to wind a fresh portion of the film into position for each picture, *pressing a catch* making the exposure. The coil attachment may be mailed to the factory or photo goods dealer, to have the pictures developed and printed, or the finishing may be done by the amateur, as desired. The portion of the coil of film which has been exposed may be at any time removed, without taking apart the camera proper. Plate holders or coil attachment, glass plates or films may be used in the same camera. Send for illustrated pamphlet with sample photograph, or inquire of your dealer. **For sale by the leading dealers.**

The BOSTON CAMERA CO., Manufacturers, 36 India St., Boston, Mass.

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R. & J. BECK'S AUTOGRAPH LENSES.



MORRIS EARLE & CO.

SOLE AMERICAN AGENTS,

In addition to the Extra Rapid Portrait Series of Combination Lenses,

AT THE OLD STAND,

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(Formerly members of the firm of W. H. Walmsley & Co.)

The Beck Lenses are now so well known that they need no comment, save the fact that they are in the hands of our best photographers throughout the country, in all their series. Rapid Rectilinear, Wide Angle and Extra Rapid Portrait.

Send for Price List; full description. Free to any address.

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JUST RECEIVED FROM EUROPE.

SELF-DEVELOPING DRY PLATES.

DR. BACKELANDT'S PATENT.

DO NOT REQUIRE A SPECIAL DEVELOPING BATH.

They develope by simple immersion in cold water.

C. P. STIRN'S PATENT

CONCEALED VEST CAMERAS, 15,000 Sold in 2½ Years.

Star Enlarging Apparatus, Circular Printing Frames and other Photographic Materials.

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STIRN & LYON, Sole Agents, U. S. and Canada.

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Send for Illustrated Price Lists and Specimen Photos.

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THE "GEM CITY" CAMERA STAND

has stood the "test of time," and is now *universally* acknowledged the BEST CAMERA STAND ever introduced to the photographic trade. It is, without doubt, the most rigid and at the same time the easiest handled.



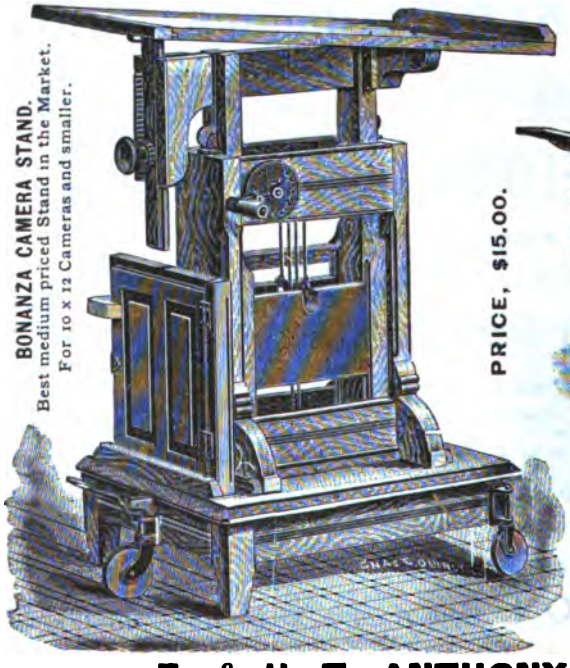
No strength is required to elevate the Camera, it being counterbalanced by weights sliding up and down on grooved guides; thus the Camera being as rigid at its greatest height as at the lowest, the center of gravity being always the same, which cannot be said of many stands in the market.

No. 1, for 4-4 to 10 x 12 cameras, 30-inch bed.....$22 00
No. 2, for 11 x 14 and 14 x 17 cameras, 40-inch bed.....22 00
No. 3, for 17 x 20 and 18 x 22 cameras, 48-inch bed..... 25 00
No. 4, for 20 x 24 cameras, 60-inch bed..... 30 00
No. 5, for 25 x 30 cameras, made to order only..... 35 00

Nos. 1 and 2 have one weight; Nos. 3, 4 and 5 have two weights and base to correspond to size of bed.

FOR SALE BY ALL DEALERS

All the "Gem City" and "Bonanza" Cameras are supplied with the "Gem City" Lever Caster without extra charge.



BONANZA CAMERA STAND.
Best medium priced Stand in the Market.
For 10 x 12 Cameras and smaller.

PRICE, $15.00.

"Gem City" Lever Caster.



Can be attached to any Stand of our make.

PRICE, $1.00.

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J. H. ALTHEIDE & BRO.,
QUINCY, ILL.

E. & H. T. ANTHONY & CO.,

Sole Agents for all Territory East of Cleveland and Cincinnati and the South.

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WILSON. HOOD. CHEYNEY CO. Limited.

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Ross Lenses

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PHOTO SUPPLIES

AT

No. 910 ARCH STREET, PHILADELPHIA.

OUTFITS FURNISHED AT ONCE. COMPLETE PRICE LISTS FREE.

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No. 1. 8 x 10.....$12.00



No. 2. 8 x 10 to 11 x 15...$15.00



No. 3. 14 x 17.....$20.00
" 4. 18 x 22 and 20 x 24..... 25.00



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The Best Burnisher in the World.
Prices, $25, $35, $45 and $55.



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Very Popular and Cheap.



BALDWIN'S BABY HOLDER
Has No Equal.

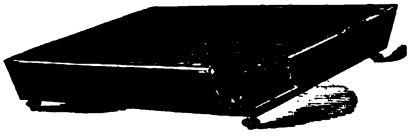


Raw Silk...$12.50
Velveteen... 14.50
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The Most Useful Chair ever invented. Prices include Circular Arm and Back Rest.



No Studio Complete Without It.
Send for Sample Page.



THE COMMON SENSE TRAY
Is the Best and Cheapest Large Tray Made.



THE WONDERFUL SUTER LENS,
HAS NO SUPERIOR IN QUALITY, AND
NO EQUAL IN PRICE.

The above represent a few of our leading specialties, all of which (except Suter Lenses) we manufacture and control. *All these items are the best in the class they represent.* **Take no other.** Send for complete descriptive circulars of any or all these items, or any article needed.

SMITH & PATTISON,

261 and 263 State Street, - - - - - - - - - CHICAGO.

Wholesale Photo Supplies of every description.

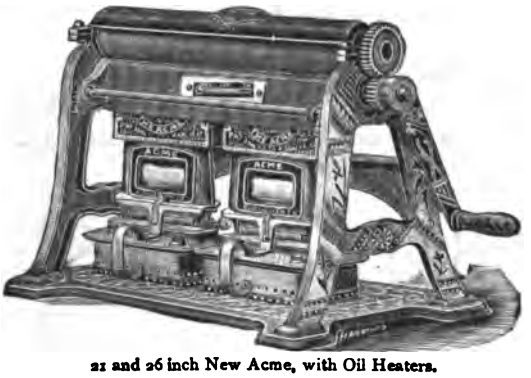
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FLUE-HEATING PHOTO BURNISHER.

Patented Jan. 25, 1876. Patented Jan. 18, 1886. Patented Feb. 28, 1888.
Also Patents for Europe and Canada.

THIS is not a Quadruplex, Duplex, Complex, or Perplexing Machine. It is simplicity itself. TO SEE IT IS TO BUY IT. Very latest Burnisher out. Handsomest Finish, Most Economical. Best results.



21 and 26 inch New Acme, with Oil Heaters.

NO MOISTURE on Feed Roll or Burnishing Tool.

Positively no oil from bearings on face of polishing tool or feed roll. No scratches possible. Easy to work. No complication.

IT CAN BE HEATED IN FIVE MINUTES.

Perfect combustion. No soot to be heated over and over again. No disagreeable smell. The heat is gauged by a thermometer, and held at one point by turning wick up or down.



11 and 15 inch New Acme, with Gas Heaters.

Every Machine Warranted.

11 in. Roll, with Gas or Oil Heater, -	$25 00	21 in. Roll, with Gas or Oil Heater, -	$55 00
15 in. Roll, with Gas or Oil Heater, -	35 00	26 in. Roll, with Gas or Oil Heater, -	65 00

For sale by all Stockhouses in the United States, Canada and Europe. Send for descriptive circulars.

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No. 2 BOND STREET.



Works at Woodland, Mo.

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SEED'S

Negative and Positive Films.

SEED'S NEGATIVE FILMS,

Treated in every respect like Seed Plates.

COATED WITH Nos. 23 and 26 SENTO EMULSION.

PRICE LIST.

	Per dozen.		Per dozen.
3¼ x 4¼,	$0 65	6½ x 8½,	$2 50
4 x 5,	0 95	8 x 10,	3 60
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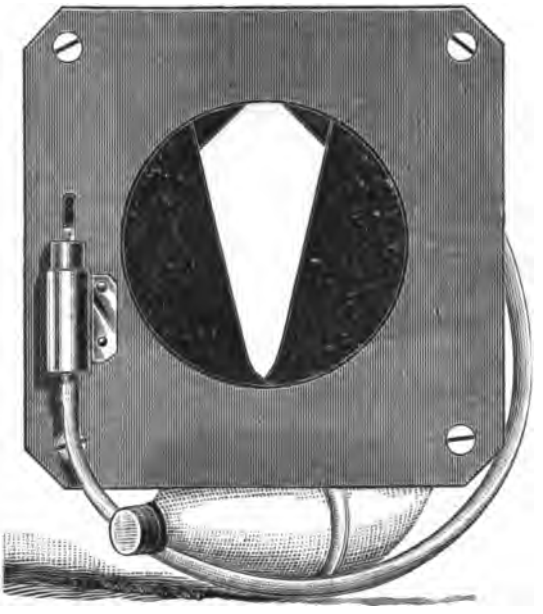
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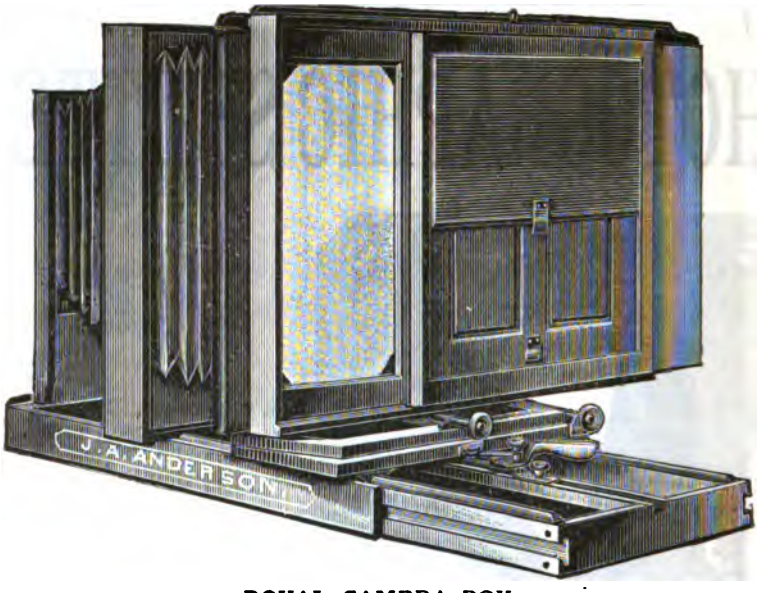
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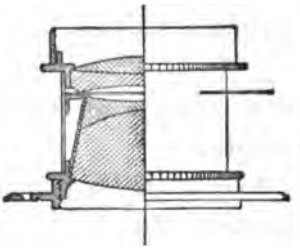
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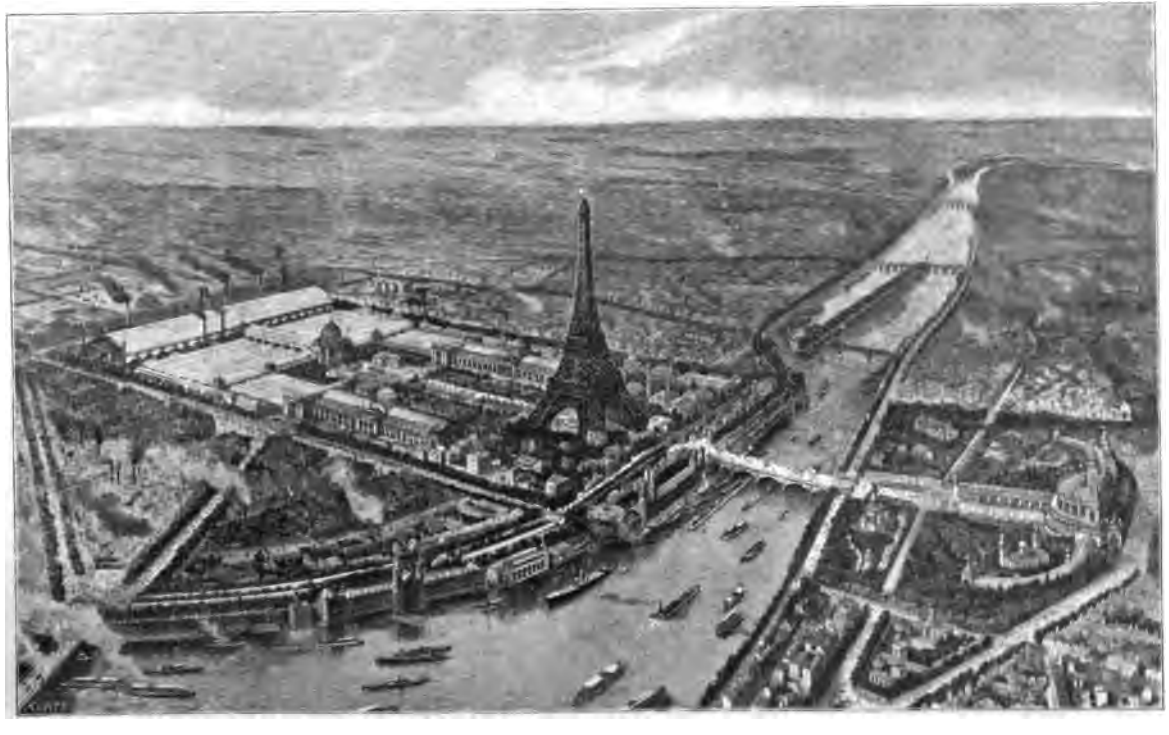
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ANTHONY'S
Photographic Bulletin.

Prof. CHARLES F. CHANDLER, Ph.D., LL.D., *Editor.*
ARTHUR H. ELLIOTT, Ph.D., F.C.S., *Associate Editor.*

JUNE 22, 1889. Vol. XX.—No. 12.

SOME NEW FORMS OF METALLIC SILVER.

THAT an elementary substance like metallic silver should exist in several different forms is quite surprising, but not altogether remarkable when we stop to think of the possible nature of the elements generally. It is now a common belief among chemists that the so-called elements are really compound bodies, and occasionally we hear of some new method which makes it possible to rend asunder the bonds that unite these compounds. Quite recently two German chemists have proved that the metals which we have called cobalt and nickel are really compounds of these metals with another metal which they call gnomium. So the character of elementary substances is constantly being disputed or new facts about them are being revealed in a sometimes very surprising manner. Working in this line of research, Mr. M. Carey Lea, of Philadelphia, has obtained some new facts about the metal silver, a simple statement of which will appear almost startling.

In a very exhaustive paper sent to the *American Journal of Science*, Mr. Lea tells us of three forms of metallic silver, that are almost entirely different from the ordinary metal. One of these new forms of the metal is soluble in water. Another is insoluble in water but readily dissolves in presence of some neutral substance that does not act upon it chemically. Yet another form of the metal has the color and lustre of gold. These results are the outcome of the researches of Mr. Lea upon the photo-salts of silver, an account of which appeared in the BULLETIN some time ago. From what has been learned of the new forms of metallic silver just discovered, it appears that this metal can exist in several conditions, which are probably the basis of the various photo-salts of silver formerly described by Mr. Lea, and are possibly molecular combinations of the metal that lead to new and hitherto unknown haloid compounds, and may ultimately serve to solve that knotty problem, the nature of the latent photographic image.

In the paper kindly sent us by Mr. Lea, and accompanied by a set of specimens that fully illustrate every fact described by the author, we note the following:

These new forms of silver can be classed under three heads. First, the soluble variety, which gives a deep red solution, and when separated gives a mat sur-

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face of lilac, blue or green when moist, and becomes bluish-green and metallic when dry. Second, the insoluble variety derived from the first, which is dark reddish-brown while moist, resembling the first variety when dry. Third, the gold-colored variety, dark bronze whilst wet and resembling burnished gold when dry. Another modification of this third variety is copper-colored.

Of these strange forms of silver there are several properties totally unlike the ordinary metal, and yet common to all. Thus, by drying the particles of in optical contact upon glass plates, metallic mirrors are formed, and when spread on paper the lustre is as perfect as that of gold leaf. Again, by spreading these new forms of silver upon paper and then acting upon them with some haloid compound, such as perchloride of iron or iodine dissolved in potassic iodide, beautiful prismatic colors are obtained, resembling the colors of a peacock's tail. Another peculiarity of these new substances is that they pass instantly into ordinary gray metallic silver under the action of acids, even such weak acids as acetic. And lastly, all these new forms of silver can be readily reduced to powder by trituration.

The soluble variety is obtained by adding a mixture of ferrous sulphate and sodium citrate (really ferrous citrate) to a solution of silver nitrate. This gives a lilac-blue precipitate which is soluble in pure water to a deep blood red color, and by analysis this soluble substance contains over ninety-seven per cent. of silver, the rest being ferric citrate, which it is almost impossible to separate from it by washing. It was further found that the proportion of citric acid in the new substances is variable, therefore they are not compounds of silver with this acid. Furthermore, these new bodies all amalgamate readily with mercury by simple friction.

The insoluble variety is obtained from the solution of the soluble variety by adding almost any neutral substance. Thus the sulphates of sodium and magnesium produce this result, nitrates and citrates can also be used, and even gum arabic answers the purpose. The analysis of the insoluble variety gives almost the same results as were obtained with the soluble substance.

In the case of the gold-colored variety, a solution of silver nitrate is precipitated with ferrous tartrate. This substance has a slightly higher percentage of silver than the two former modifications, *viz.*, ninety-eight and seventy-five hundredths of the metal.

The specimens kindly sent by Mr. Lea are very interesting. The color of the materials is totally unlike ordinary silver; the glass plates coated with the new substances are very perfect mirrors, and the papers showing the action of haloid reagents give a most beautiful display of iridescent colors. We tender our best thanks to this distinguished experimentalist for his kindness, and congratulate him on the very important results he has obtained. We wish we knew of more such earnest workers in the cause of photographic progress.

EDITORIAL NOTES.

The Photographic Section of the American Institute are to have their annual outing and dinner at Hotel Brighton, Coney Island, on August 27th next. It has been suggested to us that this date may be the time when the tide is low in the day-time between the hours of noon and three o'clock in the afternoon. If this is true for that particular date, we think it would be a good idea to set some other day for the outing when good surf pictures could be obtained during the

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hours of good sunlight. A week earlier or one later would make no special difference if this phase of the ocean could be secured.

THE "International Annual" for 1889 seems to be meeting with even more favor than its predecessor. We hear nothing but good words for it from all quarters. It is certainly fully up to the former volume, and many consider it an improvement. There is no doubt it fills a very useful place in photographic literature and occupies a field hitherto neglected, giving during the summer months a fund of most useful information when there is leisure to digest it.

CONFERENCES in celebration of the semi-centennial of photography are the order of the day. Italy had one on May 26th, and our Scandinavian friends at Christiania, Norway, had theirs on June 11th. We hope that in all these, very careful records will be kept of the reminiscences of the older artists, that we may hand down to the future some perfect historical data relating to the origin and development of photography.

WE should be glad to learn the address of McPherson and Oliver (or either of them), two photographers who took views all through the Department of the Gulf during the war, and who had a headquarters in New Orleans. They left for the North about July, 1864, when the Nineteenth Army Corps returned. If any of our readers can tell us what became of them, or where the pictures they made can be obtained, we shall be gratefully obliged.

COLONEL WATERHOUSE, of the English army in India, has been working on the new coloring matter called rhodamine as a substitute for eosine and similar bodies for making gelatine plates color-sensitive or orthochromatic. This new substance is very much like the blue eosines, such as cyanosine, and gives a strong scarlet fluorescence. This fluorescence is not destroyed by acids, as is the case with the eosines. A solution, 1 in 10,000, is used with 1 per cent. of ammonia, as a bath for the plates. It is considered to be not equal to erythrosine as a color sensitizer, although it sensitizes for yellow and orange.

A NEW material for developers has just appeared in Germany, called "Eikonogen." It is a white crystalline powder, which when dissolved in water with sulphite of sodium does not turn brown. It is said to have greater developing power than hydroquinone or ferrous oxalate, and to possess many of the good qualities of pyrogallol. The negatives are of a blue-black color, and full of the finest detail. Like hydroquinone, it can be used three or four times before being thrown away, and allows of considerable latitude in the exposure.

Dr. ELLERSLIE WALLACE, 1305 Arch street, Philadelphia, is very anxious to obtain a copy of the BULLETIN for January, 1879, to complete his set. If any of our readers have an extra number to spare they should communicate with Dr. Wallace.

MR. J. E. DAVISON, of the Providence Camera Club, sends us a handsome catalogue of the late exhibition of the Club. It is an excellent piece of work, neat, handy, well printed, and illustrated with four photo-mechanical prints,

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reproductions of some of the pictures exhibited. The exhibition was very successful; about one thousand persons visited the rooms, and one of the most attractive features was the lantern slide display each evening. The Club had an outing on May 30th, and many good pictures were obtained. Three prizes for the first, second and third best landscapes obtained during the outing are offered by the Club.

LETTER FROM GERMANY.

BY DR. H. W. VOGEL.

Another New Light for Enlarging and Spectroscopic Purposes—The Confusion between H. C. Vogel and H. W. Vogel—The Forthcoming Berlin International Photographic Jubilee Exhibition.

We have here set all sails towards artificial light. Again a new lamp has been invented—not for portrait work, but for enlargements. I have tested it, and must confess that it is excellent for amateur work; yes, even as a substitute for the Bunsen burners, particularly for spectrum work and where gaslight is not at disposal; and there are a good many such places here and in the States. It is a Ligroin lamp, and Mr. C. Fabricius, in Vienna, has undertaken to modify a system of Ligroin gas-lamps of his own construction, which for a number of years have been in successful use at numerous industrial establishments in Vienna, in cooking and heating apparatus, soldering lamps for different chemical and technical manipulations, etc., by a lucky combination with an Auer's incandescent light in such a way that they are applicable for illuminating lamps generally, but particularly as an excellent light source for projection purposes. The lamp itself acts as a Bunsen burner, but if a network of zirconia is suspended in the flame, this will change to a white light, much whiter than gaslight. Such a Ligroin incandescent lamp, placed once in activity, furnishes gas continuously for a duration of three hours after being filled (lamps of larger size admit a much longer duration), and produces a white, radiant light of great brilliancy and photographic activity. Herr A. Moll, in Vienna, has introduced the lamp into the market.

An examination by Dr. Eder and Captain R. v. Reisinger (particularly with regard to its photographic effect in the sciopticon for enlargement on gelatino-bromide paper) of the Fabricius incandescent light proved that the kerosene light now in general use appeared strongly yellow in comparison with the new light; the latter required only the third or fifth part of the time of illumination which the kerosene lamp required, and it may be remarked that the kerosene lamp used for these tests was taken from a very good sciopticon. This incandescent light is, therefore, advantageously applicable to photographic enlarging purposes, and, besides, possesses the agreeable property of producing no smoke or bad smells, which unfortunately is too often the case with the ordinary kerosene oil lamps if not properly taken care of.

In a similar way the new incandescent light proves also very effective in the copying process upon emulsion films; it ranks, therefore, between the ordinary kerosene light and the zircon or calcium light. The tests made at the Royal Academy for photography and reproductive processes resulted for the new light in a photographic action upon bromide of silver gelatine of 60 to 70 candles, if compared with the photographic effect of an English normal candle of 45 m.m. height of flame as a unit, placed at the same distance.

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The photometric comparison with the eye gave, however, only 60 candles, because the blue rays act less upon the eye. It is to be remarked that a prolonged use reduces the illuminating power of the reticular glowing body; the latter has then to be replaced by a new net.

(Description of lamp will appear in next issue of the BULLETIN.*)

We have now the fiftieth anniversary of photography, and in every part of the world where there are photographers the jubilee of photography will be celebrated this year. It is, therefore, certainly agreeable to hear that now a really excellent bust of Daguerre exists, namely, by Arthur Kaen, in Vienna, and to be had from A. Moll. It is made in plaster of Paris, and the price is, according to quality (plaster, ivory or bronze imitation), $7 to $10. Mr. Kaen informs me that he has modeled a bust and high relief-medallions of Daguerre, thus meeting the wishes of a good many who like to come into the possession of a likeness of Daguerre, and one true to nature; these having been copied from the most authentic pictures, particularly after a photograph in Snelling's "Photographic and Fine Art Journal," 1855, which is considered the best and most natural portrait ever taken of Daguerre.

Busts and medallions of Joseph Nicephore Niepce, who deserves the same honor in regard to the invention of photography, will follow in a short time.

The approaching jubilee celebration is the most suitable time for the acquisition of these portraits, and as the disciples of many other arts and sciences do homage to their masters by decorating their dwellings, studios and workshops with their busts or portraits, there can be hardly one among the many representatives of photography who should not have a similar desire for decorating his place, according to taste and means, and thus do honor to the memory of such highly meritorious men.

I received from Washington an index of literature, and this has induced me to say a few words about the confusion between the names of H. C. Vogel, director of the Potsdam Observatory, and H. W. Vogel, correspondent of this paper, and director of the photo-chemical laboratory of the Royal High School, Charlottenburg. This confusion is all the more easy, as both gentlemen work in photography and spectrum analysis and have published articles about the same. Even Abney ascribes in his "Treatise on Photography of the Ultra-red Spectrum" part of the discovery of the color sensitive process not to H. W. Vogel but to *H. C. Vogel.* A correction, which was furnished to him, was disregarded. The confusion is greatest in the index of literature of the spectroscope, by A. Tuckermann (Washington, 1888). H. W. Vogel's work about the hydrogen spectrum (Berlin Academy, 1879), further about oxygen and nitrogen spectra (Annals Ch. and Ph. 146, and reports of the German Chemical Society, XII, 532), is here erroneously ascribed to H. C. Vogel. Another work of H. W. Vogel, about relation between the absorption of light and chemism, is ascribed to H. V. Vogel. The work of H. C. Vogel about spectrum investigation with the large Vienna refractor is, on the contrary, ascribed to H. W. Vogel. This is only an example of the many and increasing confusions. This could probably be avoided if both authors would add the address to their names.

Our exhibition of the Amateur Society in Berlin is developing more and more; the sister of the Emperor, Princess Royal of Germany, has assumed the protection, and American exhibitors of highest reputation have already con-

* EDITORS.

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tributed. Medals will be awarded. The Royal Academy of War have given their rooms for the Exhibition. The opening day is on the 18th of August, the publication day of daguerreotypes.

FUMING PAPER.

Now, my dear Doctor, I do not mean to take up this old, old topic to give advice or instruction about the actual fuming of paper for the purpose of printing. I am going to bring up a scrap of ancient history—ancient photographically. Not long before the death of Mr. Henry T. Anthony, I had a long talk with him in regard to the fuming of albumen paper before printing. I was then just beginning to try to print my own negatives. I had encountered all the difficulties that had ever been heard of, and a good many besides that were absolutely new, and upon which I held an undoubted sole and exclusive control. In a word, I was an amateur just beginning. Mr. Henry Anthony's advice, good nature and kindly interest in my troubles were unbounded. He modified formulas and found remedies for me, and did all those helpful things for which he was so famous.

It was during one of these discussions of amateur phenomena of a most startling kind that we drifted off upon the general subject of fuming. He told me that at the time when he invented the process—for it was invention and not discovery—the firm was doing a large amount of printing. If memory serves me rightly there was an immense demand for stercos and other war pictures. The factory of which he then had charge was rushed to its utmost capacity. After the prints were made and went to the toning room, the trouble began. They worked slow one day and quick the next. Sometimes they would not tone for so long a time that it seemed that they would resist the bath altogether. Reasoning upon the acid character of the paper as it came from the various solutions in the process of its preparation, and the effect which this would naturally have upon the chemical reactions which took place in the toning bath, he concluded that it ought to be made alkaline. Having reached this conclusion on his way down-town, I think he proceeded at once to put the idea in practice. He took a piece of sensitized paper and exposed it to the fumes of ammonia. Here I regret that I forget the details of the first fuming, and the box which was used for the purpose. The paper was fumed, printed, and, of course, toned without difficulty. After that there was no more trouble of importance in that department. The printing was rapid and the results which followed vastly better than anything that had been done before. This was some time before any one had published anything on the subject. It was in one sense a shop secret. But Mr. Anthony was not a man to hide such an improvement altogether. Among others to whom he at once communicated it were H. J. Newton and Coleman Sellers, of Philadelphia. These gentlemen have probably papers in their possession which would show that Mr. Anthony antedated considerably those who have claimed to be the original discoverers of the fuming process. If I remember rightly, one of those who claimed authorship in the matter obtained directly from Mr. Anthony's foreman or from the work-room the knowledge of the process.

Will Professor Sellers and Mr. Newton tell us in the next "Annual" all they can of this very interesting matter?

THE FIRST DRY-PLATE AMATEUR.

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DEPTH OF FOCUS.

BY CONRAD BECK.

[Before Camera Club Conference, London.]

It is with some hesitation that I discuss the question of depth of focus, as in doing so I lay myself open to being voted a bore. I have thought, however, I would add my opinion to those which have already been expressed in the discussion of this point, which always seems to have been, and I suppose always will be, one of the most prolific discussions in photographic optics. I had a dim sort of idea that it might be possible to focus the matter down to the "Circle of Least Confusion."

Let us state, to commence with, that it will only be necessary in the consideration of this subject to treat of the light that passes through the center of the lens and forms the center of the picture. The construction of the various forms of photographic lenses, the number or shape of the lenses of which they are composed, do not in any way directly affect the consideration. The only factors upon which the question of depth of focus depends, are—1, the focal aperture of the lens; 2, the diminishing power of the lens; 3, the aberration of the lens.

I have here used the word focal aperture to denote the aperture as reckoned on the universal system—that is, the aperture in terms of the focus as $\frac{f}{8}\ \frac{f}{16}$ etc., but I wish it to be understood here even more exactly than this. In the sense that I use it, it means the actual diameter of the working aperture of the lens in terms of the focus actually in use; that is, if we were using a lens to give a life-size picture, the focus in use—that is, the actual distance from the lens to the photographic plate—would be double the ordinary focus of the lens, and the actual *focal aperture* of the lens would then be only half what it is for distant objects where the principal or real focus is in use. Of course, for all ordinary landscape photography, the focal aperture of the lens is the diameter of the working aperture divided into the focal length $\frac{f}{8}\ \frac{f}{16}$ and so forth; but for copying, enlarging or portrait purposes we must make use of the definition I have given above.

In the first portion of this paper I propose to neglect aberration; that is, I shall suppose that every lens brings the image of a point on the object to a mathematical point on the picture. Thus we may consider that for this purpose any photographic lens may be represented by a single lens of the same focus and aperture, only presuming that this single lens will accurately bring all the light coming from a point on the object to an exact point on the picture.

Now let us investigate the cause of our single lens. I have here a lens, and I have on one side of it two candles at different distances from it. What is happening? On the other side of this lens pictures of these candles are being formed in the air. They are not at present visible, but they are there nevertheless. If I put two cards in such a position that the light is reflected from them, we shall see that where these pictures are being formed there are two planes corresponding to two objects, and two only. If I put a third candle in between my present candles, I get a third picture-plane between the two original picture-planes. Every object has a particular picture-plane on which its picture is thrown, and if we take a series of objects at different distances from our lens, and note where their corresponding pictures are formed, we shall notice that a

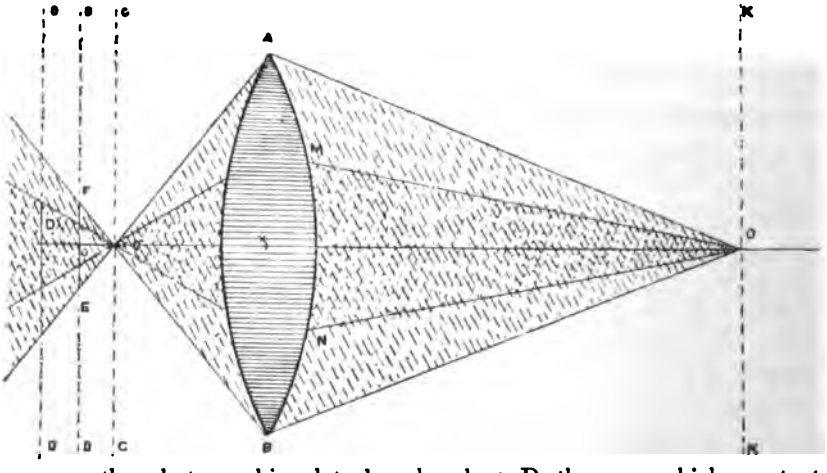
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certain interval between two objects is represented by a certain interval between their picture-planes, and that no two objects at different distances have their pictures on the same plane.

Thus, supposing we were taking a photograph, theoretically only one plane of our landscape could be sharp in our picture, wherever we put the photographic plate. But it is not necessary that the rays of light should come to a mathematical point in order that our photograph should be what we should consider sharp. We do not use a microscope to examine our photographs, and we do not expect to enlarge them more than a few diameters; so that, suppose some of the objects are pictured a minute fraction in front of the plate, and some a minute fraction behind, and some on the plate itself, they may all appear sharp unless very highly magnified. That is to say, owing to the fact that light from a point on the object need not be brought to quite a mathematical point on the picture in order to produce a sharp photograph, there is a certain allowable interval between the picture-planes, and all the objects whose pictures lie within this interval will be sharp on the photographic plate.

Now, on what does this allowable interval depend? I propose to call it the *focal interval.* It depends solely and entirely in a lens free from aberration on the focal aperture of the lens, that is, whether an aperture is in use of $\frac{f}{4}$ or $\frac{f}{8}$ $\frac{f}{16}$ and so forth.

Now, suppose that in figure we have a lens A B, forming an image at C C of an object at K K. The picture that will be formed at O′ of the point O, on the object K K, will be formed by the bundle of light contained by O A O′ and O B O′, and a picture of the object K K will be formed on the plane C C. Let



us suppose the photographic plate be placed at D, the rays which meet at a point at O′ will fall on the plate at D, not as a point, but as a circle of light, of which E F is the diameter. Now, provided this circle is quite small when it reaches the plate at O (I should put the largest limit at say .005 inches), the photograph will still, for all practical purposes, show it as a point, though it is not so in reality. That is to say, objects that have their pictures at C or at D, or at any point an equal distance behind the plate, or between these points, will all appear sharp on our photograph. This distance between these points is therefore the allowable difference in focus, or what I have called the *focal inter-*

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val. Now, if we reduce the aperture of our lens one-half, the picture O′ of the point O is now formed by the bundle of rays included by O M O′ and O N O′, and the size of the circle of light, when it meets the plate at D, is reduced one-half, and therefore, supposing it is allowable to have our circle of light as large as E F, we can take our photographic plate back from D to D′ and still get as sharp a picture. Thus, by halving the *focal aperture* we double our *focal interval*, or the allowable distance between our picture-planes.

It is evident that, with every aperture of our lens $\frac{f}{8}$ $\frac{f}{16}$ and so on, we can only have one particular *focal interval*, in order to obtain a particular degree of sharpness, whatever be the focus of our lens.

If the focal interval with $\frac{f}{8}$ be $\frac{1}{4}$ inch, with $\frac{f}{16}$ it will be $\frac{1}{2}$ inch, and so on.

To express this mathematically:

Let a = aperture of lens in inches (A B in figure)

b = distance from optical center of lens to picture of object being photographed (O′ X in figure)

c = constant value representing least circle of confusion that will give sharp picture (E F in figure)

v = focal aperture $= \frac{b}{a}$

γ = focal interval = (2, O′ D in figure).

Then, by similar triangles, it will be seen that—

$$\gamma = 2\,c. \times \frac{b}{a} = 2\,vc$$

For example, suppose—

$a = 2$ inches, $b = 8$ inches, $c = .005$ inch.

Then— $v = 4$ inches.

$\gamma = .04$ inch.

It is evident that where we are photographing objects at a distance, the distance b becomes the focus of the lens (f), and the focal aperture of our lens is expressed by the stop of our lens on the recognized system. If we use an aperture of $\frac{f}{8}$, $v = 8$, etc. When, however, we are photographing near objects, the distance b is greater than the focus of the lens, and the rapidity and focal aperture must be calculated from this actual distance, and not from the focus of the lens, as explained above.

(*To be continued.*)

HOME-MADE CAMERA STAND FOR AN ENLARGING CAMERA.

BY JOSEPH P. BEACH.

[Read before the Society of Amateur Photographers of New York, April 9, 1889.]

THIS stand is a very light affair, made of pine wood, and weighs, without the camera, not more than thirty or thirty-five pounds. It may, therefore, be easily carried by one person to any convenient place for operation.

The enlarging camera—a huge affair, for 10 x 12 plates—5 feet long, weighs one-third more than the stand upon which the heavier camera is easily put into any desired position.

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The accompanying illustrations, with the following description, fully explain its construction. Fig. 1 is a plan view; Fig. 2 is a side elevation; Fig. 3 is an end view. The stand is 4 feet long by 20 inches wide. It consists of six upright legs 2 feet 6 inches long, 1¼ inches square, held together at top and bottom by eight 1-inch strips (*A*, Fig. 1), fastened with screws. The bottom is made of

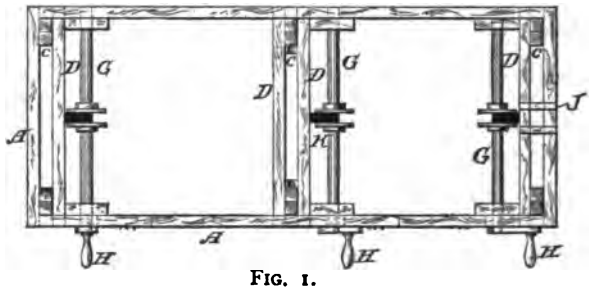


FIG. 1.

½-inch pine boards. Within each pair of legs (*B*, Fig. 2) are frames (*C*), each formed of four pieces of wood 1¼ inches square. These frames are 15½ inches wide by 20 inches in length. At the top these frames pass through an opening formed by other inch strips (*D*) screwed on the inner side at the top of the leg posts. The bottoms of the frames have on each side other inch strips

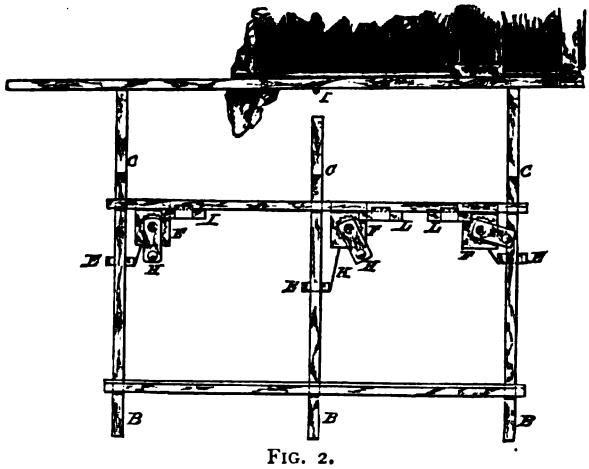


FIG. 2.

(*E*), so that the frames, when moved up or down, are guided vertically and cannot move except in an up and down direction. Upon the sides, at the top, are screwed six pieces of half-inch pine, 4 x 5 inches (see *F*, Fig. 2), pierced with inch round holes. Through these holes run three round wooden curtain rollers (*G*, Fig. 1), having three hard-wood ratchet wheels, and three soft-wood handles (*H*).

The central frame is furnished with two sockets an inch round. Across the bottom of the track of the enlarging camera another inch round roller (*I*) is screwed, three feet forward of the lightest end of the camera. When the camera is placed upon the stand this roller or pivot descends into the sockets. At either end the camera is kept in place by a couple of pieces of half-inch wood (*J*), which permits of a forward or backward play, but no side play. Attached to the under side of each of the three frames is one end of an inch wide leather

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strap (*K*). The other end of each strap is made fast to an inch roller, which is furnished with suitable guides.

To raise the camera, it is only necessary to turn the two forward handles, and when the required height is reached, two wooden bolts (*L*, Fig. 2), an inch square, lock the ratchet wheels at any point. If required, either of the uprights can be raised or lowered to unequal heights, or only the central one raised. Then the camera will be found pivoted at or near its gravity center.

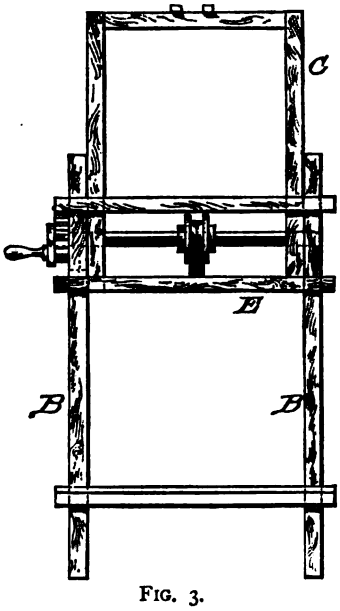


FIG. 3.

Being thus pivoted, the camera may be pointed out of a window at any desired angle in the direction of the sky.

Notwithstanding its very light construction, this camera stand, being put together with screws, is very firm, and admirably answers every purpose for which it was designed. It is to be put upon rollers, and upon the bottom shelf will be erected some light receptacles for the storage of lenses, ground glass, negatives, mats and other paraphernalia useful while the camera is being manipulated for enlarging, reducing or other purposes.

[*From Photographisches Archiv.*]

AWAY WITH THE OXALATE OF IRON DEVELOPER.

BY DR. J. SCHNAUSS.

THE first gelatine plates were developed here (by addition of ammonia) with alkaline pyrogallol. Like a good many others, I had a great deal of trouble with yellow fog, and the first formula for oxalate developer, received from England, was hailed by me with pleasure, the negatives developed with it possessing much more the character of the old collodion negatives. The oxalate developer at that time was made very concentrated by dissolving dry yellow oxalate of iron (ferric-oxalate) in boiling, cold saturated oxalate of potassium. For that reason the negatives were clear and strong.

But this developer met with no favor among professional photographers on account of its complicated and costly preparation, and the simple and cheaper

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developer, as recommended by Dr. Eder, was therefore hailed with pleasure and adopted, while other countries gave the preference to pyrogallic acid.

Since hydroquinone developer has been made known as developer for gelatine emulsion, the largest part of professional photographers as well as amateurs were inclined to favor the same, and in full justice! Is there anything more simple than a hydroquinone solution made alkaline with potash or soda and durable for a long time with a minimum of sulphite of soda? And is there actually a better developer, having no caprices like pyrogallic acid or oxalate?

It is adaptable to all conditions of light and is suitable for all more or less sensitive plates. I have developed celluloid plates of 26 degrees, and an ordinary Warnerke plate of 12 degrees, with the same certainty; yes, even chloride of silver gelatine paper; and much purer and handsomer than with oxalate! And then a pretty large limit is given in the composition of the hydroquinone developer, without material change of the result, if regard is had only to the *age* of the solution. And here we come to another advantage of this excellent developer: it can be used many times in succession, and may be poured back repeatedly into the stock bottle, if only a little fresh solution is added according to requirement. The older the solution, the stronger and clearer the negatives developed with it. A fresh solution develops in the beginning a little too quickly and thin, if acetic acid is not added; whereby, of course, only a part of the alkaline carbonate is decomposed, as care has to be taken not to make the solution acid.

The development of the picture is perhaps a little slower than with the other developer, but it can also be guarded better and the well known remedies be applied against too slow or too quick development. By being able to use the old hydroquinone developer repeatedly, it is very cheap. In the face of all these undeniable advantages of the hydroquinone developer the question arises involuntarily: Why is it that the oxalate of iron remains still in use?

PHOTOGRAPHY AND THE LAW OF ERROR.

BY CAPTAIN ABNEY, C.B., R.E., F.R.S.

[Before the Camera Club Conference, London.]

THE Conference, I hope, will excuse such an uncanny title as that which I have chosen. It looks odd, to say the least, seemingly indicating that photography is subject to errors of some description. I am not going to enter into any optical errors to which it is liable, but only to its inability to render truthfully the gradations of black and white. A question which I have often asked myself is this: In a negative or in a print, do the values in density of deposit, that is, in the translucency of the former and in the blackness of the latter, have any relation to the value in intensity of the light acting to produce such density or blackness?

This question, as I have said, I have very often asked myself, as my writings will show; but it is only quite recently that I have been able to answer the question satisfactorily to myself, and I hope it will appear equally satisfactory to the meeting.

If an initial impact of light has to be given in order that *any* action may be visible on a negative or print on development, we may suppose, after such an impact, that equal increments of intensity in light will give equal increments of action on the sensitive salt; but it by no means follows that the density of de-

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posit will proceed by equal increments. As an example, if we take an intensity of light, which we may represent by 1, and another intensity of light, which we may represent by 2, and allow them to act on different parts of the same plate, it by no means follows that on development the opacity caused by the latter will be double that caused by the former. We may look at it in this way: if we have "n" circular discs of very thin metallic silver, and place them at random on an area of a given size, it may be or may not be that some will overlap others; but the chances are much greater that, if we have $2n$ of these discs and scatter them at random on the same area, some will overlap others. Suppose in the case of the n discs none overlapped, but that in the case of the $2n$ discs some did, and if the area of each disc was a and the area of the surface on which they were scattered was A, then in the first case the transparency of the surfaces to light would be measured by $(A-na)$, and in the second, $A-(2na-2nk)=A-2n(a-k)$, where k is the amount of average overlap of the discs. Evidently, then, the transparency of the last area would not be twice that of the former. In the same manner, it can be argued that by increasing the number of particles to 3, 4, etc., "n" the transparency would not be proportional to the number of particles scattered. This is exactly what occurs when light acts on a film. The number of particles of deposited silver in a given area are presumably proportional to the intensity of the light acting, but they are in a sense scattered at random over that area, and hence some overlap, and the overlapping increases as the number of particles increases. If this were not so, we ought to have an intensity of light in which absolute opacity is introduced after a certain exposure, which we know is not the case.

Were it so in a Spurge's sensitometer, in which the light admitted to each chamber increases 2^3, we ought, if we know the size of a particle, to be able to calculate the curve of descent. This can be readily done; for if we measured the transparency of the part of the plate where the intensity of the light was known, then that would give us a measure of the areas of the particles deposited, and we ought to be able to calculate the transparency for any other intensity of light. Thus on a sensitometer plate if the smallest hole gave a transparency to light of $\frac{99}{100}$ of the original light falling on it, then we should know that the silver deposit was $\frac{1}{100}$ of the area on which it was scattered. At the fourth smallest hole, where the light acting is double, the silver would occupy $\frac{2}{100}$ of the area, and the transparency would be $\frac{98}{100}$; at the seventh hole it would be $\frac{4}{100}$ and the transparency $\frac{96}{100}$; similarly the tenth hole would give $\frac{92}{100}$, the thirteenth $\frac{84}{100}$, the sixteenth $\frac{68}{100}$, the nineteenth $\frac{36}{100}$ of transparency, while the twenty-second would cause total opacity of deposit.

Now, from absolute measurement we know that such is not the case; the curve which a developed plate exposed in the sensitometer takes is *very* different, as the diagrams show. The curve which the transparency takes is identical with the curve of error of observation, taking for abscissæ the number of the holes and not their area. I may refer you to Sir G. Airy's book on the "Theory of Errors," and there you will find that the probability of an observation being at a certain distance from the truth is expressed by the formula $A'=Ae^{-kx^2}$ where A' is the probability of error and x the distance from the truth.

I should like here to give the measurements of the apertures of a sensitometer made on Spurge's plan, in order to show the accuracy which is attainable by it. The holes were measured by a micrometer made by Hilger, which is capable

of measuring to $\frac{1}{100000}$ of an inch. The following measures were made in $\frac{1}{10000}$ of an inch. The largest hole is indicated as having the highest number. The holes are intended to diminish in area by $\frac{1}{2^3}$.

Hole No.	Theoretical.		Measured.	
	Diameter: ten thousandths.	Area.	Diameter: ten thousandths.	Area.
30	4560	1633	4560	1633
29	4017	1267	4063	1296
28	3605	1017	3620	1029
27	3202	814	3220	817
26	2856	642	2873	648
25	2497	491	2560	515
24	2290	412	2280	409
23	2031	324	2030	324
22	1818	260	1810	258
21	1642	211	1610	204
20	1439	162	1436	162
19	1260	122	1280	129
18	1145	102	1140	102
17	1010	81	1010	81
16	894	62.7	905	64.5
15	800	50.3	806	51.0
14	724	41.2	718	40.5
13	650	32.2	640	32.2
12	554	24.1	570	25.5
11	512	20.6	508	20.2
10	465	17.0	452	16.1
9	416	13.6	403	12.8
8	358	10.1	359	10.1
7	305	7.3	320	8.1
6	285	6.4	285	6.4
5	231	4.15	231	4.15
4	217	3.7	226	4.0
3	194	2.9	202	3.2
2	181	2.5	179	2.5
1	158	2.0	160	2.0

The boring of the holes will be seen to be very accurate, and the deviation from what was desired is as small as can be expected. In the very small holes the percentage of error is much larger than in the large ones, which might be anticipated. In my experiments the twenty largest holes were all that were utilized, and in these the error is certainly small enough to be negligible.

I must here put in a word to ask photographers to conduct experiments of this description with as much accuracy as possible. There is a degree of refinement in photographic experiments which is often quite unnecessary; but, on the other hand, the phrase "about so much" should never be used, unless it can be shown that such an approximation is sufficient.

Let me explain how the experiments were conducted. A gelatine or other plate was placed in the sensitometer and exposed for a given time to the light from an equally illuminated surface. It was developed and placed in the apparatus for measuring the transparency of deposit as I have recently described. The number of the holes was then placed as the scale for the base of the curve, and the transparency of each set up as an ordinate; a curved line was drawn through the extremities of these ordinates.

In the formula $A' = A\varepsilon^{-kx^2}$, x was the number of holes from the first hole

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in which the action of light was apparently *nil.* To find k, x was taken some way down the scale, and the value of A′ (which in this case was transparency of deposit) was taken from the curve A, the total transparency was also known. This gave k. Using this value of k, the transparency of deposit was calculated for each ordinate, and, as before stated, the resulting curve was found to agree with that plotted.

I cannot say exactly at the present time why the formula does apply to photographic plates, though the theory would seem to point to a connection between the transparency and deposit in the way I have indicated. Professor Rücker and myself have both had a try at the adaptation, but have not yet finished our investigations. It is, however, none the less true that the formula holds good when a negative is developed, or when a platinum print is developed, allowing for the light reflected from the platinum as well as from the background of white paper, as the examples I give show. But it does not hold good in the case of a silver print, for reasons which, I trust, you will appreciate. When light acts on chloride of silver it blackens it, and after the first short impact of light, of course, the subsequent light has to struggle through the various intensities of blackness to reach the silver salt below, and this must necessarily modify the result. On the other hand, when a plate is exposed to light, the change in color is so small that practically the light has only to struggle through the silver salt in its pristine state. The same applies very nearly to a platinum print in which the change in color of the iron salt is small.

In the appended table are two examples of the theoretical and observed curves, one being a gelatine plate and the other a platinum print.

Bromo-Iodide Gelatine Plate.			Platinum Print.		
No. of hole.	Observed Transparency.	Calculated Transparency.	Abscissæ (No. of holes).	Observed reflected light.	Calculated reflected light.
1	124	—	1	45	45
3	118	117	2	45	45
4	114	111	3	44	43.7
5	105	103	4	42	42
6	94	92.5	5	40	40
7	83	81	6	37.5	37.5
8	71	70	7	35	34.6
9	59	59	8	32	31.7
10	50	48.6	9	29	28.8
11	39	38.7	10	26	25.1
12	29.5	30.6	11	22	22
13	23	23.1	12	19.5	19.1
14	17	17.5	13	17	15.9
15	13	13.3	14	13.5	13.3
16	9	9	15	11.5	10.9
17	7	6.5	16	9	8.9
18	5	4.4	17	7	7
19	3	2.8	18	5	5.6
			19	4.5	4.5
			20	3.5	3.4

In the formula :

$$A' = A\varepsilon^{-kx^2}$$

$$A = 124$$

$$k = .0116$$

In the formula :

$$A' = A\varepsilon^{-kx^2}$$

$$A = 45$$

$$k = .0072$$

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[*From Photographisches Wochenblatt.*]

DEVELOPING BROMIDE OF SILVER PAPER.

BY F. STOLZE.

THE use of bromide of silver paper in its application for enlargements increases daily, and the question of the mode of its development obtains therefore a considerable significance. This will still more increase when glossy bromide of silver paper is better known and more generally introduced in the market. There is no doubt that this will be the case, the handsome neutral tone, in connection with great brilliancy, making the paper excellently suitable for the smaller portrait sizes. In character they are fully equal to the ordinary photograph, although deviating in color somewhat, and with regard to sharpness, linear fineness, clearness of the high lights and depth of shadows they even surpass them.

Presumably the development of bromide of silver paper should offer no particular difficulties, everybody being acquainted with that kind of work by the development of dry plates, and particularly in Germany, where the oxalate developer is still principally used for negative purposes, it should be considered the easiest thing in the world. But exactly the contrary takes place. And this can easily be accounted for, if it is considered that some conditions arise which are quite immaterial in the negative process.

Of both—enlargements as well as negatives—we require strength and softness; but while the latter have to show these properties in their transparency, they have to be embodied in the picture on the former. Further, while in negatives the tone has no particular function, it is of the greatest importance for positives; and while finally a slight fog on negatives is in a good many cases even much liked, it is entirely inadmissible for positives. As now all these conditions for positives are disregarded in the development of negatives, it can easily be explained that frequent complaints are made about failures. To this may be added the circumstance, that all the papers heretofore introduced in the market required different treatment, and that besides this, certain conditions were demanded by the several formulas, which are by no means a necessity.

I am not mistaken, I think, by asserting that all specified formulas mark the application of soluble bromide salts hitherto a *conditio sine qua non* for obtaining strength and a good tone. This, however, has to be declared decidedly as a mistake. In an actually successful preparation strength and tone will come out best if the exposure is such that bromide is not at all required; hence it is supposed that the negative is not too thin. In the latter case bromide has to be added to retard the high lights sufficiently long that the deep shadows can obtain the necessary strength. In every other case the addition of bromide for paper of first quality should be avoided. I know that it is difficult to obtain such a paper of uniform quality, and I know this from my own experience.

But even where the paper will not give sufficient strength without the bromine salt, it is the rule that the quantity of the same should be held back as much as possible in the interest of the tone. Under all circumstances, therefore, also with best paper behind thin negatives, so much exposure should only be given as is needed either to obtain the necessary strength or for the development of all details, while the bromide addition is suited to the time of exposure, and not reversed. If we overstep this line the tone will suffer under all circumstances, and we are forced to apply various expedients for fixing, the details of which I will explain further on.

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To find the correct time of exposure is therefore of more importance for enlargements on bromide of silver paper than for the production of negatives. While for the latter too dense a deposit necessitates only a longer time of printing, it would make a positive unfit for use. Here, therefore, is the essential point, and it is my opinion that the general interest of photography will hereby be promoted. During the period of wet plates one was required to expose correctly. In this regard the gelatine plates have led to an indifference which can only be deplored, because the results are not only influenced injuriously, but because in consequence of the same the fine judgment for correct valuation of light is lost more and more. We over-expose simply " out of caution " and rely on bromide of potassium. But positive photography upon bromide of silver will make an end to this pretty soon.

Now we do not want to say that an exposure strictly correct to within a hair's-breadth is indispensably necessary. Even if we double the exposure, a relatively good picture can still be obtained by a simple stopping of the development and without greater addition of bromide of potassium; it is surprising how large a limit there is in this regard in the time of exposure. But just on account of that we should be very cautious with the addition of bromide of potassium. I place so much importance upon this point, because I know from experience that many photographers are so fully convinced from the application of bromide potassium that they disregard the advice to work without it, and declare they know better. To be sure, some of the papers in the market cannot be used without the bromide of potassium, and are beforehand subject to so much chemical fog that without this addition a picture with clear whites and deep shadows can never be produced. But even here one should be very cautious, and not believe that by continually increased addition of bromide of potassium a brilliancy could be forced. That is impossible. The modification of the bromide of silver in these papers is such that it does not give an actual black, but always is more or less dark gray, which, by longest exposure with greatly increased addition of bromide of patassium, does not become darker, but only more greenish. It is, therefore, here also necessary to await the proper period of time at which the shadows become still darker with the aid of a certain addition of bromine salts during development. Increased exposure and more bromine salts will then both act injuriously. The depths, which in such a manner cannot be obtained photographically pure, have to be put in afterwards by retouching. As this concerns always only the dark shadows, the fine half tones of these papers being always very handsomely delineated, they will always give good results for well retouched pictures. Without the same they will always have an unfinished and weak appearance.

In the development with oxalate it is necessary, as is well known, to put the pictures in weakly acidified water, if a yellow coloration is to be prevented. But many mistakes are made here. Thin negatives, to obtain the greatest possible strength in the developer, are worked with a great deal of iron; in extreme cases with one of iron solution to three oxalate, concentrated solutions. If we dilute a sample of this mixture with water we will find that it will darken after a short time with formation of a yellow precipitate. This takes place, if a little slower, by diluting with the ordinary acidified water. The cloudiness, however, even takes place sometimes with one of iron to five oxalate, only that a longer time is then required. This explains now why under certain circumstances a yellow

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coloration of the pictures takes place in spite of all acid baths. This happens with a developer containing a great deal of iron, and with films which wash very slowly on account of the hard gelatine. In such cases, if too serious, an increase of the acid to double or three times its quantity in the first water will help; but if this is not sufficient, the picture should first be put in a pure oxalate solution, left for a few minutes therein and then washed with weakly acidified water.

Many of the papers in the market have such a soft gelatine coating that this can be injured very easily, and in a wet condition a touch of the finger is oftentimes sufficient to melt it. Although this condition is very inconvenient during the manipulation, it still offers the advantage that the above mentioned yellow coloration happens much less, because the film washes much easier. After fixing and excessive washing out of the fixing soda, care should be taken, under all circumstances, for a toning of the film, in case the application of an alum-fixing bath is not preferred.

This leads me to a point already mentioned. One is able to essentially influence the tone of a picture in the fixing bath which became green in the development. The most simple means for this is based upon the well known toning action of the fixing bath. The picture is left therein for about half an hour and the tone will be found considerably improved. The mixed alum fixing bath acts in this respect much more energetically, the pictures assuming a more bluish tone after a proportionally short time. Still quicker than this bath acts the tone fixing bath introduced by me for chloride of silver paper, in which even very green pictures, after complete fixing, will obtain a handsome tone. The composition of the tone-fixing salt being not sufficiently known yet, I will publish it again at this opportunity. Dissolve 35 parts hypo soda, 9 chloride of sodium, 4 alum, 2 ammonium sulpho-cyanide in 150 to 200 water. The solution, which has a whitish color and is thick, ripens in warm weather in about four days; during the winter one week is required. The bath is decanted from the sediment or filtered. The undissolved, crushed, well mixed salt ripens also in this condition, so that it can be kept in stock. Immediately before use add a few cubic centimeters of chloride of gold solution 1:50 to the bath. The bath will keep for several weeks. If it should not work so energetically after some time, about 10 cc. concentrated alum solution per liter are added to the same. If a black sediment should form in the bath after awhile, it is a sign that it is saturated with silver. This is then precipitated in the manner described by me with sulphuret of potassium, avoiding a surplus of this salt, and the filtered bath can be used anew.

To give a fixed, standing formula for the oxalate developer is not recommendable. Proper judgment, according to conditions, has to be exercised, and relatively more or less iron has to be taken to the oxalate, having always in view that less iron will also give less soft pictures. I myself prefer to work with one saturated iron solution to five saturated oxalate solution, and I apply only with reluctancy a stronger developer on account of the above-mentioned yellow coloration. For weaker developers a dilution of this mixture is mostly sufficient; but as there exists still a certain danger of this discoloration, I increase the oxalate a little, and only after that I add pure water.

If several pictures have to be made in succession, the stronger parts should be developed first, afterwards the weaker pictures, by adding a little fresh developer. In this way from five to six pictures can be finished in the same solution.

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This is about all that I have to say about the oxalate developer. In the next number I shall speak about the hydroquinone developer, which is in the advance now, and has such advantages that yellow pictures, which so frequently occur with iron, are completely excluded.

(*To be continued.*)

A METHOD OF MAKING DARK BLUE-PRINTS.

BY CHARLES J. BATES.

[Read before the Society of Amateur Photographers of New York.]

It must be said that to obtain any final result some drudgery is inevitable. The hunter who depends on the game he kills or the fish he catches for his living, kills and catches in the best or easiest way he may, cleans and packs the results, considering that as part of the work in preparation for the market, where he gets his profits. But the true sportsman has a feeling of satisfaction in having made a good shot on the wing, or skillfully tired out an obstreperous fish, and derives an additional pleasure in the contemplation of a fine buck or a fish that will suggest a story bigger than itself; but this same sportsman will frequently rather give away his game than even take the trouble to carry it home. It is a trite simile to compare a photographer to a sportsman, for that has often been done; but in the home work of the photographer there is much that has no parallel to the efforts of the sportsman, except maybe in the feeling of satisfaction over the results. Many persons carry their cameras far to get a picture. Having "pressed the button," they take no further interest in the matter until the finished print is placed in their hands. I have known others "stalk" a picture, study this view and that view, and if the case is difficult, with irregular or uncertain lighting, they will study the development with a care almost inconceivable, and having finally secured a good negative it is a matter of entire indifference whether they ever make a print. The majority of persons, however, who take an intelligent interest in photography, like to see the positive that may be compared to the original. This has led the writer to try to find some way to secure a print that will be pleasing in tone and simple in manipulation. From some hints derived from an old book the "blue-print" was tried nearly thirty years ago, but was discarded for reasons now well known. Many other experiments were tried, the latest being the following, the results, however, not being eminently satisfactory. But the writer is cheerfully willing to give his game away rather than to carry it home. Some experiments, as well as the known fact, proved the hopelessness of any attempts to change the blue color of the blue-print except by operations making the result more trouble than it was worth, or at least to entirely destroy the simplicity sought for.

It took little observation to discover that the blue color was transparent, so it occurred to the writer that the blue could be combined with another color that would result in a more satisfactory tone. The nature of the solar spectrum at first suggested using orange (orange being complementary to blue); so by making blue prints on orange colored paper a very good tone was secured, but with the very serious objection that the high lights retained the orange color. Other papers were tried; but the best results came from a gray paper, which gave a very good blue-gray tone, with the same objection, however, that was found to the color of the high lights, though not so serious as in the case of the

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orange. It then occurred to the writer to ask, could not some substance sensitive to light be used that would give a color where color was wanted, and on washing would leave the lights white or nearly so. The only substance at present known to the writer is bichromate of potash. This is nearly as sensitive to light as the blue-print, and as it was a hopeless or at least difficult task to make a bichromate print first and then a blue-print correctly over it, a series of experiments were tried by mixing the bichromate with the blue print solutions in various proportions, as shown in the table.

It being known that a saturated solution of bichromate of potash spread on paper would make a clear print of a strong yellowish brown tone, Solution 1 was tried. The resulting paper proved very insensitive to light, due, no doubt, to the failure of the solutions to soak well into the paper. The outer surface was affected by the light protecting the substrata so that unless exposed for a long time the picture all washed off. This was largely obviated by adding water as shown in Solution 2. The resulting tone here being too blue, the amount of bichromate was increased as shown in No. 3, but with the same objections that were found to No. 1, so further dilution was resorted to, as shown in No. 4; but the color being still too blue and having learned a lesson from No. 3, a reduction of the ammonia citrate of iron was tried, as shown in No. 5. The above general principle was carried on as shown variously in the succeeding solutions. Want of time has prevented further experiment; but the writer thinks that by using a stronger solution of the red prussiate and proportions like those in the latter part of the table, good results might follow:

TABLE OF PARTS OF SOLUTIONS USED FOR EXPERIMENTS.

	NUMBERS OF EXPERIMENTS.																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
a. Saturated solution potash bichromate (fluid drams).....	1	1	2	2	2	2	2	2	4	4	3	4	6	6	4	2	4	3	3	2	2	3	3	2	2	2	2
b. Water (fluid drams).....	0	2	2	3	3	4	4	4	4	4	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0
c. Solution red prussiate potash, 1 in 10 (fluid drams).....	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	6	4	4	4	4	4	4	4	6
d. Citrate iron and ammonia (grains)	40	40	40	40	30	30	20	10	10	16	20	20	20	40	40	12	12	12	12	0	4	2	4	2	6	8	4

A large number of prints were shown as examples of the different experiments.

[*Written for the "International Annual."*]

TRANSPARENCIES IN PRUSSIAN BLUE.

BY ROBERT BENECKE, *St. Louis.*

SELECT glass free from scratches and bubbles, put it in a solution of washing soda awhile, wash it and set it up to dry. Now take 1 ounce of fine gelatine, such as is used for making dry plates, put it in clean water, wash it a couple of times, squeeze out the water and place it on a clean towel. After about one hour dissolve the gelatine in 20 ounces of hot water, and filter it through cotton, flannel, silk, buckskin or cotton pushed into the neck of a funnel. Coat the plates with the gelatine solution warmed to 120 to 140 degrees F. In cold weather it will be necessary to warm the plates. When the solution is spread evenly over the glass, lay it on a cold marble slab placed horizontally, and as soon as the coat-

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ing has become stiff enough not to run any more, set them up on nails to dry. This will take from eight to twelve hours or more. Any number of plates can be prepared this way and may be kept for any length of time in a place free from dust. The next is to mix the sensitizing solution. Dissolve citrate of iron and ammonia; 7½ drams in 4 ounces of water, also ferri-cyanide of potassium, 5 drams in 4 ounces of water. Mix and filter into a dish and immerse plates for about five minutes, avoiding air bubbles. This is better done in the evening by lamplight. Next morning they will be dry, and ready to be placed under the negative and into the light. Time for printing required is about double of that for albumen paper. The last thing to be done is washing, which removes the salts and develops a rich blue print.

The solution must be made fresh, as it will not keep very long after being used. The plates will keep in the dark for some time.

The idea of making blue transparencies was suggested to me by my friend and enthusiastic amateur, R. Bain, President of the St. Louis Camera Club. He proposed to add the salts to the gelatine solution, but it would not work, as the citrate of iron and ammonia would immediately coagulate the gelatine.

I hope that your readers may enjoy this novelty; it is all I had to offer as a contribution to your valuable Annual this time.

DARK ROOM LIGHTING.

BY P. ERSLY.

Do different kinds of light affect different eyes in a different way? I commenced using the ruby light. Finding it injured my eyes, I next tried the yellow light. Not liking it, I tried yellow and green, and can say it exactly suits me, and I think if those using ruby or orange will try hanging up a sheet of green tissue paper before the window on the inside of the dark room, they will find, as I have, that it gives a very pleasant light to work by, not at all trying to the eyes, and far superior to either of the others in enabling them to conduct the development with more certainty and uniformity.

OUR ILLUSTRATION.

With this issue of the Bulletin we present our readers with an illustration showing the Paris Exposition now in progress and the great Eiffel Tower. We have seen no view that gives a better idea of the height of this enormous iron structure. Our thanks are due Mr. G. Cramer, who kindly furnished us the French newspaper (*L'illustration*) drawing from which the photo-mechanical print was made by Mr. W. Kurtz, of New York. When we state that the original is over thirty by forty inches in size, the beauty of the reproduction can be better appreciated, and the honor is due to Mr. Kurtz' process.

ANOTHER VETERAN.

To the Editors of the Bulletin:

In your last issue I noticed a dispute between Mr. Notman and Mr. J. A. Palmer with regard to being your oldest living customer. I claim to have taken the first views which were produced of the Thousand Islands, River St. Lawrence, in 1855, from Sidney Jones's, Brockville, Ont., with a camera made by Mr. E. Anthony, purchased through Mr. H. S. Wruphrey. Mr. Wruphrey fur-

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nished the camera box, which is still in existence. The views were on dry plates made by the albumen and honey process; exposure required, five minutes; size, 16 x 20. These views have never been surpassed for detail and brilliancy, being the first published in Europe in 1860, giving emphasis and accuracy to the illustrations of the Thousand Islands, River St. Lawrence.

A. C. McIntyre,
Alexandria Bay.

We have also received from Mr. J. A. Palmer two half plate (4¼ x 5½) daguerreotype views, which are excellent pieces of work. They are instantaneous pictures, full of detail, and were taken during the year 1855.—Eds.

TRIP TO BOSTON CONVENTION.

A capital chance to escape from the heat of railroad travel, but get there just the same, is to take advantage of the special excursion from Philadelphia on the steamer "Norman" and enjoy the cooling breezes of the sea instead. All that go by this most delightful route will have plenty of time to get sea-sick, being forty-eight hours on the ocean.

If you want to join us on this voyage, make up your mind quickly, as this is a very popular summer route, and the staterooms are always taken for weeks in advance. The fare for the round trip, including meals and berth in stateroom, is only $18. The "Norman" sails from Philadelphia at 12 o'clock noon Friday, August 2d. If parties desiring to go will advise us before July 10th and send check for $18, we will obtain the tickets and staterooms for them.

Buchanan, Bromley & Co.,
1030 Arch street, Philadelphia.

P. S.—I have made this trip several times, and can testify that it is a most delightful voyage, with gentlemanly officers and crew, plenty to eat and drink, and a good opportunity to look out for whales and sharks. For my part, I would not go by any other route. W. P. Buchanan.

ANTHONY'S PRIZES FOR BROMIDES.

Our publishers offer for competition at the Boston Convention of the Photographic Association of America, August 6 to 10, 1889, the following prizes for the users of Anthony's Reliable Bromide Paper:

For the best collection of Plain Enlargements and Contacts.....$100
For the best collection of Crayon Worked Enlargements..... 50

The conditions for competition will be as follows:

First—For the $100 prize the prints must be at least six in number and must embrace both Contacts and Enlargements.

Second—The awards will be made for the best collection as a whole.

Third—Competitors must forward their exhibits prepaid so that they will reach Boston by the first of August.

Prints may be framed or not, at the option of the exhibitor.

Each package must contain a card stating the name and address of the exhibitor and his private mark, a letter being sent also with same private mark, but on no account must any other than the private mark appear on the pictures.

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themselves. Instruction as to the class in which they are entered must also be given, and the pictures numbered on the back to correspond with the number given in the class entry. Judgment will be given to the distinguishing mark, but the awards will be announced with both mark and name.

Be sure and ship your exhibits in good time, as those arriving late will not be apt to get a good place, and will run the risk of not getting there in time to be entered for competition.

All exhibits will be subject to the Association rules. Applications for space must be sent to the Secretary of the Association, Mr. O. P. Scott, 2220 Indiana avenue, Chicago, Ill. E. & H. T. ANTHONY & Co.

AIR BRUSH MANUFACTURING COMPANY'S PRIZES.

THE Air Brush Manufacturing Company will offer the following prizes at the Convention of the Photographers' Association of America, to be held in Boston, August 6 to 10, 1889:

First.—One complete Air Brush will be given for the best free-hand portrait done with the Air Brush. This may be in black and white or water colors.

Second.—One complete Air Brush will be given for the best water color portrait, over any print, finished with the Air Brush.

Third.—One complete Air Brush will be given for the best portrait in black and white, over any print, finished with the Air Brush.

GOOD WORDS FOR "INTERNATIONAL ANNUAL."

EVERY year there is published by E. & H. T. Anthony & Co., of this city, an International Annual with the idea of giving the new improvements in apparatus and developers in photography and showing what advance is being made in the science. The number which has just been issued for this year will be found most interesting by those who have a liking for the camera and its work. Unlike the British Annual, it is not made up mostly of advertisements, but contains 479 pages of reading matter. The book is illustrated, and contains a fine photographic study of a girl by Falk, printed on Bradfisch aristotype paper, as a frontispiece. Other pictures give an idea of the methods of printing nowadays.

The Annual is edited by Arthur H. Elliott, of the United States, and W. Jerome Harrison, of Birmingham, England. Among the contributors are almost all the prominent writers on photographic subjects. The purpose of the publishers has been to tell what is new in a series of well written articles on the various subjects, as well as a few sketches in a lighter vein. To the novice in the art the instructions therein contained will be of value. To the reading matter is also added a directory of photographic societies and a series of tables of needful formulas to the picture-maker.—*N. Y. Times*.

IT is an attractively gotten up book. Yours truly, FALK.

AT a glance I can see it will not only be interesting, but very instructive.
LIEUTENANT C. L. BRUNS, *U.S.N.*

I DO not think any other Annual can ever pretend to compete with it for fullness and excellence of information. TALBOT ARCHER, *England.*

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ANTHONY'S
Photographic Bulletin.
EDITED BY
Prof. C. F. CHANDLER, Ph.D., LL.D.,
Aided by ARTHUR H. ELLIOTT, Ph.D., F.C.S.,
and a corps of practical assistants.
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Advertisements should reach us not later than the Saturday preceding the issue for which they are intended, otherwise we cannot promise to publish them in the succeeding number. It is also necessary to notify us of any alteration before the date above mentioned, and to state for what period the advertisement should be continued—whether for one, six, twelve or twenty-four issues.
E. & H. T. ANTHONY & CO., Publishers.

AMERICAN INSTITUTE—PHOTOGRAPHIC SECTION.

CLINTON HALL, 19 ASTOR PLACE, N. Y.

REGULAR MEETING, JUNE 4, 1889.

President NEWTON in the chair. Communications being first in order, Secretary Mason read the following:

NEW YORK, May 20, 1889.

Photo Section American Institute, O. G. MASON, *Secretary*.

Dear Sir:—We send herewith a photograph of Miss Ellen Russell, negative made by Mr. J. F. Ryder, Cleveland, O., on our plate. Please accept it, with our compliments.

Yours truly,

M. A. SEED DRY PLATE CO.

The Secretary also read the titles of the photo journals and papers received since the last meeting, all of which were duly acknowledged by a vote of thanks.

A special vote of thanks was tendered to Mr. M. A. Seed for his valuable contribution, and the Executive Committee was requested to give it a prominent place among other choice examples of photographic art that already adorned the walls of the Institute.

The reports of Committees were next called for, and Mr. J. B. Gardner, the chairman of the "Annual Field-day and Dinner Committee," proposed that the outing and dinner take place at Brighton Beach, Coney Island, August 27, 1889, and that the dinner be served in the Hotel Brighton, at 4 o'clock P. M. This proposition was seconded and confirmed by a numerous vote of the Section.

The chairman invited all members of the Institute and their friends to unite with the Section and participate in the feast on the above named occasion. All who thus desired to join with them could obtain tickets by addressing either the clerk of the Institute, D. L. Garden; Dr. A. H. Elliott, 591 Broadway; O. G. Mason, 403 East 58th street, or J. B. Gardner, 147 Fulton street, New York, N. Y.

A resolution was passed that when the Section adjourned, it adjourn to meet, not only at the Hotel Brighton, on the last Tuesday in August, but in the lecture room of the Institute on the Tuesday following the excursion. The chairman then announced that the programme of the evening would be an exhibition of Centennial slides contributed by members and friends of the Section, and the first contributors he should have the pleasure of introducing were the Messrs. Simpson, both prominent members of the New York Photographic Society of Amateurs.

Each of these gentlemen exhibited twelve pictures that called out the frequent applause of the audience.

These pictures were followed by a large collection made during the three days of the parade by President Newton.

These were followed by an equally large number made by Professor Elmendorf.

There were also slides contributed by Messrs. Lightowler, Fisk, Mason and Faris.

The whole number of pictures exhibited during the evening was two hundred and twenty.

The stereopticon was managed by Messrs. Fisk, Lightowler and Elmendorf; and by this combination were probably exhibited more pictures in a given time than can be found on record.

This collection of pictures, as a memorial of the Centennial, will, no doubt, as time passes, continue to increase in interest; for they will remain as one of the most tangible proofs of a display never before equaled in this country or perhaps in any country.

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Of all the thousands of pictures that were taken on this memorable occasion, few could be found, perhaps, that would exhibit more skill, more artistic taste and painstaking labor than those presented to the Section; and that they were duly appreciated by the large audience present, was quite manifest by their frequent and hearty applause.

At the usual hour the Section on motion adjourned.

CHICAGO LANTERN SLIDE CLUB.

MAY 21, 1889.

ALTHOUGH a cold and rainy night, a large number of the members assembled at the Sketch Club rooms, in the Art Institute, to enjoy the lantern exhibit from the Interchange set of slides sent by the St. Louis Camera Club.

After a pleasant informal discussion on lights for lantern purposes, the *President*, Colonel STEVENSON, called the meeting to order at 8.30 P. M.

The minutes of previous meeting were dispensed with. Eleven new members were elected.

A report from the Committee on Illustrated Chicago was read, and the President suggested that we make use of negatives from views before the fire of 1871, so as to present the past and the present. Dr. Nicol then occupied a little time in testing lanterns and describing the light used. He claimed that the light is the mainspring of the lantern; the best objectives and condenser were worthless without a good light. There was a great desire to find a lamp giving the maximum of luminosity with the minimum of heat. Experiments in that direction had not succeeded as he desired, most makers seeming to forget or overlook the fact that the rays of light falling on the condenser at an angle would be converged and brought to a focus at a certain point in the distance, and only a small portion of an expansive light could be utilized in the condenser. For this reason, instead of three or four wicks in a lamp, the Doctor held that one argand light of even power and whiteness would give the best illuminated disc. He then showed the Ives Fairy Lantern, designed for the oxy-hydrogen light, a little pocket-piece, or, more properly described, about like the Waterbury or Anthony 4 x 5 Detective Camera. This unfolded and with rigid form held the entire apparatus for projecting a picture suitable for Central Music Hall.

After this interesting exhibition, Dr. C. F. Matteson proposed the name of Mr. H. H. Bennett, of Kilbourne City, Wis., as an honorary member of the Club. In offering this motion, he remarked that Mr. Bennett, in his position at the Dells of the Wisconsin River, had done many favors for the members, as also on that exceedingly interesting evening, with his beautiful slides. The Club unanimously voted the honor, and the Secretary was instructed to notify Mr. Bennett.

The St. Louis set of slides then proved a rare treat. Doctor Nicol assured the audience that he felt pleased to notice so many of the slides matted for the particular picture; and that while some might call him a crank on mats, he was satisfied in his position and claim that a true artist would frame his subject artistically. The Secretary operated the McIntosh lantern, and the Doctor interested the audience with the praises of each slide. Especially mentioned were those by Messrs. Dunn, Bain, Rev. Charoppin, and Butler.

We feel that the management of the American Lantern Slide Interchange is productive of much good, and the lantern exhibits from each set are hailed with delight.

W. A. MORSE,
Secretary.

HARTFORD CAMERA CLUB.

FIFTH ANNUAL OUTING, MAY 30th.

THE destination of the party was the extension of the New Haven and Derby Railroad, along the line of which, by invitation of the railroad company, it was the intention of the photographers to cull from nature many of the choice bits of beautiful scenery there presented to view.

The special made its first stop at the rock cut, just outside of the city. Next the big bridge at Derby became the focal point of many lenses. From here the train ran to the Ousatonic dam and a short distance further on the Indian Well came in for its share of the "shots." At the unique trestle-work bridge an hour's halt was made and nothing in the vicinity worth photographing was slighted. At Stevenson's luncheon was provided and served by the ladies.

Botsford was reached about half-past three and very little work could be done there because of the heavy rain. The train soon started on the homeward trip, and after a stop at Emerson's mill, to permit a shot or two at the old ruin, proceeded to this city, which was reached at six o'clock.

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Altogether, three hundred and fifty-three exposures were made. It was decided that an album should be made up from the negatives secured on the outing and be presented to the railroad company as a mark of appreciation of the courtesies extended to the excursionists.

Those from Hartford were Mr. and Mrs. A. H. Pitkin, William Pitkin, Elmer M. White, Dr. and Mrs. G. L. Parmelee, H. O. Warner, J. C. Hills, Miss E. M. Day, Mr. and Mrs. Elisha Risley, the Misses Risley, Dr. and Mrs. H. G. Howe, Mr. and Mrs. Henry Fuller, Elmer Quiggle, Mr. and Mrs. W. E. Whittemore, C. R. Nason, Miss F. E. Spencer, Fred D. Berry, Miss E. M. Harrison, T. W. Hooker, George W. Burch, F. A. Thompson, Mrs. A. Butler, R. W. Ney, F. G. Warner, Fred. H. Chapin, Miss Chapin, Arthur R. Thompson, Miss Weaver, Miss Mill, Miss Howard, Miss Bunce, Mr. and Mrs. Hinman and W. W. White.

Those from Springfield were: Mr. and Mrs. C. C. Parkhurst and Mr. C. A. Emery.

The Meriden contingent was Rev. A. H. Hall, Charles S. Sidell, Mr. and Mrs. George A. Fay, Miss Upson, W. A. Webber, J. H. Chase, Dr. T. S. Rust, William Savery, George Ellsbee and R. A. Palmer.

From New Haven were: George DeForrest; J. P. Hopson, Superintendent New Haven and Derby Road; F. A. Jackson, J. F. Malone, Fred. E. Hotchkiss, T. Joseph Chatterton, E. R. Slater, Miss Darrow and Miss Gower.

From Waterbury came E. H. Everett, George Chapman, William Young and Charles R. Pancoast.

Mr. Pancoast carried with him a camera which has seen service during the past seventeen years in every quarter of the civilized world.

ST. LOUIS CAMERA CLUB.

ST. LOUIS, June 4, 1889.

President BAIN, with seventeen members, present.

The minutes of the last meeting were read and adopted as read.

Applications for active membership from Mr. Arthur H. Zeller and Mr. Dave B. Aloe were read and referred.

The notice of the appointment of Frank J. Hickman as Assistant Secretary, in accordance with the resolution adopted April 2d, 1889, was read.

Mr. Harry L. Bauer was unanimously elected to active membership.

The report from Father Charropin upon the progress of the slides for "Pictorial St. Louis" was to the effect that forty of them had already been made, which would be exhibited at the next meeting; and that he only had about half of the negatives named on the printed list.

President BAIN explained the process of making blue-print transparencies, which was as follows: Coat a clean plate of glass with gelatine and allow it to stand until dried hard. Be careful in handling, as the gelatine will not take the solution where there is a finger-mark on it. Flow the plate with the ordinary blue-print solution, which should be allowed to drain off by standing the plate on end. When perfectly dry, print in the usual way.

The meeting adjourned at 8.55 P. M., after which the set of slides of the London Camera Club were exhibited.

W. M. BUTLER,
Secretary.

THE CHICAGO EXHIBITION.

WE take the following account from the Chicago *Herald*, kindly sent us by Mr. Gayton A. Douglass:

"Well, 'Doc,' what do you think of it all?"

The reporter and "Doc" had been spending a leisurely hour in the rooms of the art institute, chiefly with the exhibition of the photographic society. "Doc," it may be stated, is a garrulous old Chicagoan who affects to be a connoisseur in the arts.

"It is capital, sir. The two exhibits by J. W. Buchler, who is a banker on Randolph street, constitute a very admirable collection of photographs, ranging all the way from Florida groves and light-houses to Chicago suburban homes. Dr. H. A. Johnson, of Sixteenth street, whose son, Dr. F. S., is an enthusiastic amateur, has also scored a success in his dozen of Florida views. Moses L. Scudder, Jr., of the Chicago, Burlington and Quincy Railroad, has given some very interesting studies from his recent Mexican trip; those bull-fight views and groups of Mexican Indians are worth a volume of written description. What can be nicer than to bring the camera along on such holiday trips as those to Florida, Mexico or other lands? Just now it is quite the thing, too, for I notice that young Higginbotham and others who recently left town for Europe were equipped for making pictures. Among the ladies, several of whom are represented in the exhibition, a conspicuous place must be given to Mrs. H. E.

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Stevenson, for her California mountain scenes. Mrs. Hattie Bradwell, daughter-in-law of the Judge, is represented by two air brush portraits, very well executed, and it is said that the home of the family, on Michigan avenue, has almost become an art gallery from the numerous productions of herself and husband, Justice Bradwell, and the parents of the latter. You know the old Judge himself has prepared pictures for his own paper, the *Legal News*, and is versed in all the mysteries of photographic reproduction. Mrs. Bartlett, wife of the famous chemist, has also some excellent studies by the Pizzighelli platinum process. That is a new idea—modification of the Willis & Clements method—and gives a fine steel engraving effect, while it is apt to be much favored by society people on account of its not requiring much handling of chemicals or soiling of their delicate fingers. Another lady amateur, Mrs. F. A. Delano, of Edgewater, has furnished some good specimens of portraiture and holiday scenes. Then there are the exhibits of Lawyer J. P. Gardner, forty fine views by W. H. Gardiner, about as many by Fred K. Morrill, suburban views by James Colegrove, and collections by Dr. C. F. Matteson, E. Burton Holmes, Messrs. Fowler and Dupee, of Kenwood, Robert P. Harley and Ben Manierre, all so many creditable evidences of local amateur talent."

"With people like these so interested in photography Chicago cannot well fall behind?"

"I should say not," resumed "Doc," "and the best of it is the actual exhibitors form but a fraction of our host of amateurs. Professor G. W. Hough, of the Dearborn Observatory, is an accomplished photographer; so is General Arthur Ducat, of the Home Insurance Building—he has fitted up an elegant gallery in his residence at Downer's Grove—and so is Broker Jamieson, of LaSalle street, brother of the Judge. Then there's Dr. H. D. Garrison, of the Chicago College of Pharmacy, a thorough chemist and always willing to solve a problem for the comrades of photography, while there are any number of surgeons and physicians among us—not to speak of architects, engineers and railroad men—who employ the art as their familiar interpreter and professional aid."

"The same devotion to photography seems to prevail in other great cities?"

"Yes, in cities great and small, from Washington, D. C., all the way to our newest summer resorts. It has become an ambition as well as a pastime with people of most liberal culture, and, whether traveling or at home, is capable of affording them the rarest æsthetic delights. The exhibition here includes some charming amateur specimens from other quarters. Burnham's, of the Lick Observatory, we might almost claim as our own—anyhow, it is chiefly scientific—but there is the beautiful selection by George A. Nelson, of Lowell, Mass.—you were admiring his conception of 'The Village Blacksmith'—and that by Miss C. E. Sears, of Boston, whose sheep studies are so suggestive of Rosa Bonheur. James F. Barker, of Milwaukee, has also sent some fine landscapes, and everybody has noticed with pleasure the home-like suggestiveness of 'Coming from the Bath' and 'On Papa's Back,' by John L. Stettinius, who is a Cincinnati millionaire. Other fine exhibits from outsiders are those of Mr. G. E. Davis, of Dubuque, Iowa; O. L. Hesse, of New York; W. H. Walmsley, the Philadelphia dealer; and, in transparencies, of Messrs. Clarence B. Moore, of Philadelphia, and Daniel Miller, of Baltimore—this last phase of photography, by the way, being admirably adapted for interior decoration. Those of the foreign professionals, as might be expected, comprise some very superior work, notably the pictures of S. L. Stein, of Milwaukee; of H. B. Chamberlin, of Schullsburg, Wis.; of Theodore Endrem, of Cleveland, Ohio, and Arcourt, of Aurora, in our own State. The exhibits from British professionals — F. M. Sutcliffe, of Whitby; W. W. Winter, of Derby, and E. P. Gibson, of Hexham—are almost necessarily among the finest specimens of the art, while Scotland and Scottish life are duly honored by the groups bearing the label of Mr. and Mrs. Auckhorn, of Arbroath. The dealers and inventors—Carbutt, of Philadelphia, and M. A. Seed & Co., of St. Louis—are fittingly represented, the last named firm being the only exhibitor from the city at the end of the bridge."

"How do our local professionals figure beside those from abroad?"

"I hate to say anything about local professionals, for if you were to publish it some fellow would surely be jealous. At the same time, I cannot but avow that among the street, park and architectural views of J. W. Taylor, of Monroe street, I seem to find as good chemical effects as in any photographs I have ever inspected. His instantaneous views of racing and bicycling, and of the moving scenes of city life, are wonderfully clear and perfect. O. P. Scott has likewise made a fine general display, including some portraits of

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local celebrities, which are of the highest merit. F. A. Place, though but recently settled among us, has made a handsome exhibit. The large-size pictures of D. R. Clark are likewise so many victories in that trying field of photography. Jacob Maul has largely confined himself to types from our German element, wherewith he proves himself to be thoroughly at home. E. L. Fowler, W. A. Cooper, and a few others, including Hurlbut, of Belvidere, and Gale, of Joliet, have also made displays quite worthy of their reputations. I notice that W. A. Howe, who was lately a real estate clerk, has developed into a professional, and supplies a good evidence of his progress in a line of excellent portraits. This transformation of the amateur into the successful trade photographer is by no means rare, and has given to the profession some of its most successful members. In fact, there is nothing to complain of in the professional part of the exhibition except that it is so limited—that so many who might shine in it have ignored it from conceit or apathy; though a few, no doubt, from unavoidable causes."

"You consider the exhibition as a whole, then, to be fairly representative of the present condition of the arts?"

"From a cursory review I should judge that scarcely anything is wanting, except, it may be, that class of scientific photographs which have no interest save for students in laboratory or dissecting-room. Celestial photography is represented not only by the solar pictures of Burnham, but in learned studies of the spectrums by George Ellery Hale, of this city, and glimpses of the play of lightning and storms, clouds and sunlight by observers at different points. Of mechanics, there is a representation in the carriage pictures of the Studebaker Brothers, and in others, like the fine view of a Chicago and Northwestern locomotive, by Fred H. Davis, of this city. And then, in all the regions of life and art, from a simple portrait of a baby to a widespreading landscape, from a solemn church interior to a crowded city street, there are such specimens as must give pleasure to all lovers of the beautiful. It is no hyperbole to say that of all ways known to man, such a display as is here contained alone 'holds the mirror up to nature.'"

"And, moreover," pursued "Doc," "as limited as this first exhibition is, we find in it examples of all the latest discoveries in the art. The flash magnesium light, which is to render photography practicable even at nighttime, is presented in its best effects by Mr. Chamberlain and other exhibitors. The use of magnesium in this connection is not new, but the preparation of the metal in a powdered form insures a degree of activity which is more dazzling even than electricity. In engineering processes this is destined to be a boon, one of the pictures on view having been taken in a mine tunnel far beneath the surface of the earth. The carbograph, or photography on a marble surface, will never become very common, but specimens of it are shown which display quite effectively the beauties of which it is capable. So is it with all the other improvements in photography—all are illustrated here, as well as the comparative merits of the various kinds of lens, developer, plate and print, these appearing on the catalogue opposite each numbered exhibit, for the guidance of the inquirer into chemical effects."

"You think, then, that the exhibition and its prizes will have the effect of stimulating the art of photography in Chicago?"

"The exhibition certainly should, as being the initial one of a programme long contemplated, and which is designed to bring together for mutual study and comparison and in friendly competition all lovers of this art in the West. It may still be a question, however, whether the giving of prizes at all is calculated to do good, as there is yet no standard of excellence which can satisfy at once the true artist photographer and his rival who is simply a craftsman."

SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

Discussion on Negative Films.

The *President*—In regard to the matter of films, I will allude to the fact that there was some difficulty found in connection with them. This letter has been received from Allen & Rowell, of Boston, the manufacturers of the ivory film, in reply to a letter from Mr. Beach. They say as follows:

Boston, April 6, 1886.

Dear Sir,—Your favor of the 3d at hand and contents noted. In answer we can say that we are aware some spots have been found in our film, but we are at a loss to account for the cause. We have had packages sent back as worthless that, upon our testing them, proved faultless.

This has occurred in a number of instances. Your suggestion of camphor in the celluloid being the cause has had our consideration, and we cannot trace the spots to that. Cam-

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phor has been used by us, in the wet process, in the collodion, with good results.

We appreciate your letter as being in the line of helping us to discover the cause of the spots.

Some of the spots have come from developing, we know; and some we know to be in the celluloid, but those are not more or worse than usually occur in glass plates. We have spent considerable time and taken the greatest of pains in making the films, and have thought we had a first-rate thing, but it is a new thing and has not had the test of time. If the celluloid is going to develop something that will make it useless for this purpose we have yet to learn it. We do not think it will. Some have had excellent success with it. We think as those who use it become better acquainted with it they will have less trouble.

We thank you very much for the kindly spirit of your letter, and can assure you that if there is any out in the films we shall do our best to discover it, and not let up till we have produced a perfect article.

Respectfully,

ALLEN & ROWELL.

The *President*—I think there are some of the gentlemen here who have had experience with that. If they would be kind enough to let us hear from them probably we could have a valuable discussion on this point.

Dr. NAGLE—Mr. Chairman, I have a few films which were made by Allen & Rowell, and some of you may be able to explain those spots which were found upon them. I had an idea that they were not roughened enough, so that the gelatine didn't catch on the plates very well, and I will pass them around so that the members might be able to give a better explanation of that than I can.

The transparent spots are in the form which you will see as I pass them around. I want to show that it is not the fault of development.

The *President*—What proportion of films in your use of them proved to be good and what proportion proved to be bad?

Dr. NAGLE—Well, I think that about 25 per cent. were spotted just in that way.

The *President*—You had no difficulty with the development of them?

Dr. NAGLE—Well, of course they are not as rapid as the Cramer 40's. They were a little slower.

The *President*—Have any of the other members had any experience with these films?

Mr. A. L. SIMPSON—I have tried a few of them, and found them without spots, but slightly prone to fog.

Mr. BIRDSALL—Percentages are rather misleading. I have found 100 per cent. of them spotted, but I have only tried three. (Laughter.)

Mr. DUFFIELD—Mr. President, do any of the gentlemen know if these spots are found in the Carbutt films?

Mr. CHAMPNEY—Here is Mr. Tiemann, who says that he found Mr. Carbutt's films good.

Mr. TIEMANN—I will only say that I have had about eight dozen of the Carbutt films, which I used down South; and all of those came out clear—that is, without spots. Of course some of them were under-exposed, others under-developed; but so far as spots were concerned, they were very free from them.

Mr. A. L. SIMPSON—I have also had the same experience.

Mr. DAYTON—Mr. Chairman, I have used dozens of Allen & Rowell's films, and they were very good generally; some of them were not—about a dozen of them had spots on them.

Mr. DUFFIELD—I understand, Mr. President, that the Seed Company has also placed films on the market—a negative film and a positive film. Have any of the members tried them?

The *President*—I have not had any experience with them, because I have never heard of them before.

Mr. A. L. SIMPSON—Isn't it possible that the spots are produced by air bubbles when the films are lying in the tray?

Dr. NAGLE—Fresh hydroquinone developer was used. You can see the spots in the unexposed films.

Mr. SIMPSON stated that they were caused probably by leaving the tray quiet.

Mr. NEWCOMER—Mr. President, I have had the same experience with bromide paper, which I found was due to wetting the film, and I finally submitted the matter to Dr. Ehrmann, and he developed some himself, but he didn't succeed any better than I did, and he sent them to the Eastman Company and they could not explain it.

The *President*—Had you any theory of it yourself, Mr. Newcomer?

Mr. NEWCOMER—I think the difficulty is unquestionably due to the water.

Mr. SCHRAM—I had similiar experience—spots caused by wetting of the films—and that is the cause of my rising at this moment to speak. I exposed four films the other day, and when I developed the plate I first soaked

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at for a few minutes in water. That film had quite a number of spots on it—probably a dozen—and the other three I developed without wetting them, no spots on them at all. I don't know whether the spots were caused by wetting or not, but that seems to harmonize with the statement that the gentleman has just made.

Miss COREY—I have had that same experience.

Mr. NEWCOMER—I might add that I found that the spots were certainly chemical in their character, because the direction of the rocking of the tray was also the direction of the spots when they started. I tried that; in fact, nearly all the experiments I could think of I tried, and Dr. Ehrmann could not explain it, and the Eastman Company have not attempted to, although importuned and expostul ted with. (Laughter.)

The *President*—I would like to inquire if Dr. Nagle's experience tallies with that. Were you in the habit of wetting your plate?

Dr. NAGLE—No, sir; I don't know that I was. Some I wet and some I didn't.

Mr. SIMPSON stated that he believed it was due to the non-rocking of the developer.

Mr. TIEMANN—In the case of films, I always wet them before putting on the developer, but I also took the precaution to leave them there until any part of the film which might be a little less soluble than the other gets perfectly saturated, and I haven't had any spots at all.

(*To be Continued.*)

Bibliography.

DIE PHOTOGRAMMETRIE ODER BILDMESSKUNST. Von Dr. C. Koppe. Weimar: *Photographen Zeitung*, 1889.

This is a very complete manual of photography applied to surveying, by one of the professors of the Technical High School at Braunschweig. It is a large octavo volume of about eighty-five pages. It discusses plotting by means of photography and the value of photographic objectives for this purpose. A new instrument called a photo-theodolite, specially designed for this work, is described and its uses explained. In fact, it is a very perfect exposition of photo-surveying, and those of our readers interested in this subject will find the volume full of useful suggestions. It is well printed, and illustrated with a large number of wood-cuts, several plates of work executed, a sheet of licht-drucks by J. B. Obernetter, and sheets of lithographic plates showing the construction of the instruments used.

UEBER AEHNLICHKEIT IN DER PORTRAIT-PHOTOGRAPHIE. Von Hans Arnold. Weimar: *Photographen-Zeitung*, 1889.

This is a pamphlet of about sixty octavo pages which treats of the pictorial effect in portrait photography. Its usefulness is marred by the absence of table of contents and index, or, indeed, any guide to the matters discussed. It is well written and contains many valuable artistic ideas in portrait studies; but this long monograph of sixty pages is too hard to digest without an interval.

PHOTOGRAPHY FOR ALL. An Elementary text-book. By W. Jerome Harrison, F. G. S. New York: E. & H. T. Anthony & Co., 1889.

This small volume of one hundred and thirteen pages is written specially for the use of the beginner in photography. The subjects discussed embrace every operation in photographic manipulations, and the clearness of the style shows the touch of a master hand. From the photographic camera to the finished print Mr. Harrison gives all necessary details and many useful hints to the beginner. We cheerfully recommend it to all entering upon amateur photographic work.

TRAITÉ PRATIQUE DE PLATINOTYPIE SUR EMAIL sur porcelaine et sur verre. Par Geymet. Paris: Gauthier-Villars: Quai des Grands Augustins 55, 1889.

This is one of those neat little volumes of the "Biblithéque Photographique," published by Gauthier-Villars of Paris. It gives all the practical operations for the use of the platinotype process on enamels, porcelain and glass. In the space of about one hundred small octavo pages the author discusses the formation of films containing metallic oxides, the various salts suited to enamels and ceramics. Also various vitrifiable films and collodions, methods of reproduction, preparation of the various metallic double salts, such as those of gold, platinum, iridium and others. The last chapter contains a number of valuable formulas.

HELIOGRAPHIE VITRIFIABLE. Par Geymet. Paris: Gauthier-Villars as above.

This is a little treatise of about one hundred pages upon the preparation of enamels for photographic purposes. It gives a list of the apparatus needed by the enameler, speaks of the selection of enamels, the size of the grain, the metal plates forming the basis of enamel work, the correct temperature for firing, retouching and other necessary manipulations.

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What Our Friends Would Like to Know.

N. B.—We cannot undertake to answer questions of a technical character except through the columns of the BULLETIN. *Correspondents will please remember this. No attention will be paid to anonymous communications.*

Q.—A. W. W. incloses cutting from an old copy of Walzl's *Friend*, where an author advocates the use of concave lenses in the tube of a Dallmeyer lens, in order to increase the size of image. He writes: I came across an article which I inclose to you, asking if such a thing is practicable? If so, must it be with a wide angle lens? I have tried it with a No. 4 Euroscope and Rectilinear view lens, but can get no image in either case. You will notice there is a slight difference in the two articles inclosed. The last one says, "substituting concave lenses for the back combination." This makes altogether a different combination of it. An explanation through the columns of the BULLETIN will greatly oblige.

A.—Any concave lens has the power of diverging the rays of a convex lens, consequently if placed between two convex lenses, as in a double combination, it will make the image larger. No real image can be formed by placing a concave lens outside the focus of a convex lens, hence the second lens is necessary to form the image. In the case of the wide angle lenses, these are generally sufficiently short in focus to admit the use of concave lenses of the proper focus between the two combinations; but we think that the ordinary rectilinear lenses are usually too long focus to admit of this arrangement. It would be necessary to use a longer tube, admitting the separation of the two regular combinations to a greater distance apart. It must be remembered that the insertion of another lens between the regular combinations absorbs light and decreases the rapidity of the lens accordingly; furthermore the lens inserted must be accurately ground or it will give a distorted image even with the other lenses of the combination in first-class condition.

Q.—"Canada" writes: You will oblige me by answering the following through the columns of the BULLETIN. Should albumenized paper be cut to lengthen or widen the face in portraiture? Which way is generally used in large printing establishments?

A.—On looking into the matter, we find no rule followed generally; the paper is usually cut for economy without regard to stretching. Mr. F. G. Pearsall, of 298 Fulton street, Brooklyn, N. Y., has studied this matter and has had a patent for some special manipulation; he may help you if you write to him.

Q.—M. B. P. writes: Will you please inform me through your columns the best means of making "bichromate of copper and ammonium," and also its properties. I wish to use it in an experiment in photography. I have the chemical laboratory at my service to make it in. I have the chromate, but want the bichromate. By so doing you will greatly oblige.

A.—Try digesting bichromate of barium with a calculated quantity of ammonio-copper sulphate. We do not know the properties of this compound. It is not in any of the books at our disposal.

Q.—R. K. writes: Would you please instruct me through the columns of the BULLETIN if there is any way to make blue-prints shine to look as if they were burnished? Can they be varnished—if so, in what way? If you would kindly answer the above questions, you would oblige a subscriber.

A.—Flow the prints with a thin warm solution of gelatine, squeegee upon a piece of highly polished rubber, or a glass plate smeared with vaseline, and then rubbed perfectly clean. When dry, they may be stripped from the plate with a fine glazed surface.

Q.—A. W. R. writes: A short time ago I made up a silver bath after the formula published in your BULLETIN, called the O'Neil formula. I am getting very good results with the same, but there is one thing I would like to know. I am keeping my solution in a glass-stoppered bottle and give it a good deal of sunning, and there is a thick coating forming on the sides of the bottle, quite black. I used distilled water in making the same, and would ask it as a favor if you will inform me as to the cause of the same and if there is a remedy.

A.—The black color is metallic silver caused by the decomposition of the silver nitrate from the organic matter in the bath under the influence of sunlight. You can get rid of it, *i. e.*, dissolve it out of the bottle, by means of nitric acid. You cannot prevent its formation in the bottle.

Q.—F. D. S. writes: I have no trouble with my silver bath, but would like to ask a question or two in regard to the answer to A. C.'s question in the BULLETIN of May 11, 1889.

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Now, that answer says that a pure silver nitrate bath should be acid with nitric acid. My book on silver printing by H. P. Robinson and Captain Abney says that a silver bath should be alkaline with ammonia. Now, which is best, or does either work well? And you said, too, that the bath should be just acid enough to blue litmus paper.

A.—A slightly alkaline bath is often used and works well; but with fumed paper an acid is generally used. We prefer the latter bath, the acid being just sufficient to turn blue litmus paper *red.*

Q.—W. E. S. writes: I inclose four prints, two developed with pyro and two with hydroquinine. Nos. 1 and 2 are pyro. The objection to 3 and 4 is the snowiness of effect, and I desire to know through the BULLETIN if there is any way of obviating it. In No. 3 the field and house in middle distance are nearly blank white, while in the negative there are fine details all through that part, and can only get them now by covering brook in foreground, that it may not become too dark. For studio work the hydroquinone is fine, giving detail through both lights and shadows. Hope you will be able to help me out of the difficulty with views.

A.—We think the trouble with the hydroquinone views is due to having too much alkali in the developer; use less of this latter component and go slow. There is too much contrast in the prints and they look hard from lack of half tones. Use weaker developer with hydroquinone than for pyrogallol and you will get softer results under all circumstances.

Views Caught with the Drop Shutter.

MORRIS EARLE & Co. write us that we were mistaken about the change in their business. The firm of W. H. Walmsley & Company no longer exists; they are conducting the business at 1016 Chestnut street, Philadelphia, and are the agents for Beck's Lenses.

MR. W. H. WALMSLEY is now doing business at 1022 Walnut street, Philadelphia, under the firm name of W. H. Walmsley, Limited, where he has an entirely new stock of photographic and optical apparatus.

MR. W. M. BUTLER, the Secretary of the St. Louis Camera Club, gave us a call the other day *en route* for Europe, whither he is traveling with a friend, intending to visit all the principal cities. As he carries his "Detective" with him, we hope to see some good pictures on his return. We wish the two gentlemen *bon voyage* and safe return.

WE have before us some excellent examples of Wolfe's half-tone photo-mechanical and fine-line process. They are certainly good pieces of work, and reflect honor upon Mr. M. Wolfe, of Dayton, O. When used for fine book illustrations upon coated paper they leave nothing to be desired in this class of work.

PHILLIPI BROTHERS, of 815 Arch street, Philadelphia, recently had a fire in their studio which caused considerable damage. We believe they were fully insured.

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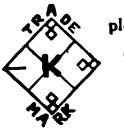
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1889

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EDWARD L. WILSON,

Editor and Proprietor.

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FIRST. Its local name will be changed to one which will be more in keeping with the wide growth of Photography. *The Philadelphia Photographer* will go out of existence, after twenty-five years of service, and WILSON'S PHOTOGRAPHIC MAGAZINE will take its place. There will be no change in editor, publisher, or owner, nor in the publication, except as to details.

SECOND. The issues will occur on the first and third Saturday of each month, as heretofore. Those of the first will be embellished by an albumen-paper print; those of the third will be embellished by a photo-gravure, photo-engraving, or photo-lithograph print.

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FOR 1889

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New departments will be devoted to short, terse, practical hints, amounting, at the end of a year, to a splendid book. Some elaborately illustrated articles, both amusing and instructive, on posing and the use of accessories and backgrounds, will be started soon. A series of reminiscent articles in honor of the jubilee year (semi-centennial of our art), will begin in January. A complete manual on painting backgrounds and accessories, by the late veteran background-maker W. A. ASHE, of New York, will appear in chapters. It will be invaluable. The present variety of columns, under the care of the editor, will be continued, and it will be his constant effort to make his magazine maintain its long time position, as *"the best in the world,"* and the cheapest. A world-wide connection enables him to secure and give the choicest the photographic world affords. When you buy instruction secure experience with it.

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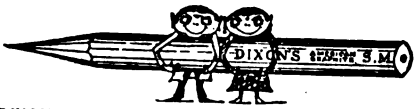
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IMPORTANT ANNOUNCEMENT to all parties using Photographic Plain Salted Papers. That hereafter I shall prepare both matt and leatherized salted papers by an entirely new process, for keeping its primary color for several days after its being sensitized, it being excluded from light and sulphur fumes in the meantime; and the way to do this is to place it in tin tubes made nearly air-tight. Among its qualities are toughness, a superior matt surface, having a splendid tooth for all kinds of artists' work. For sale by all dealers.

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Having a full supply of Photographic Materials, I can furnish Photographers with stock at *nearly Chicago prices*, it also being a saving of four days' time.

Having the experience of nearly thirty years, and keeping the best of help in all branches, I can retouch, print and burnish cards, for the trade, at $1.25 per dozen. All work in proportion. **E. L. EATON.**

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DON'T send to Chicago, St. Louis, or other points, when you can buy as cheap closer at home. Remember I carry a large and complete stock of everything needed in the business. All the leading Brands of Plates in stock. Our facilities for filling your orders promptly are unsurpassed. Try us.

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FOR IMPARTING A BEAUTIFUL FINISH TO PHOTOGRAPHS.



THE superior qualities of this Burnisher consist: first, of first-class workmanship in its construction; second, the Roll can be turned back in a second from the Burnishing Tool, so that the Tool can be dressed or cleansed, and the Roll be immediately replaced ready for operation without having to handle hot plates, etc., as in the other burnishers.

It has also the removable Burnishing Tool patented by W. G. Entrekin. The Burnisher can be heated with gas, coal oil, or alcohol. Another great advantage: it will produce a beautiful satin finish to photographs, and any boy can work it.

E. & H. T. ANTHONY & CO., 591 Broadway, New York, Agents.

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EVERY PHOTOGRAPHER should subscribe for this newspaper, as it is published in the interest of the fraternity. **The most thoroughly independent Photo Journal in America.** It is not controlled by any Photographic Stock House. **The best medium for Advertisers in the United States**—be they Stock Dealers, Dry Plate Manufacturers, Photographers, Operators, or, in fact, any one having anything to bring to the notice of a Photographer or an Employee.

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THE

Bradfisch Sensitized Aristotype Paper

IS UNEXCELLED.

THIS paper is claimed to give finer results than any other Aristo-Collodio-Chloride, or the best Albumen paper; it prints **quicker, softer** and **richer** than these and renders all the fine details of the negative; it will keep the high-lights and half-tints without requiring the shadows to be overprinted. Negatives of ordinary strength, as used for Albumen printing will give surprising results, but fine prints are also obtained from thin or dense negatives. This paper will not **curl, crack** or **frill** under any circumstances; it will also not stretch and cause distortion. Nothing can exceed the beauty of the prints, which are toned and fixed without previous washing in our combined baths (formula for same given in directions). Any desirable tone, ranging from the richest sepia brown to the velvety black, with remarkably pure whites, can be obtained in this bath, requiring less care and labor than any other method. The surface of the prints may be rendered faint or brilliant by burnishing or glacing them. If protected from the actions of light, air and dampness, the paper will keep its good quality for four months or longer.

We would request all photographers, professional or amateur, who are desirous of keeping in the van of progress, to give this fine paper a trial, its cost being not higher than that of Albumen paper, figuring time, labor and materials for silvering.

PRICE LIST.

Size.	Per dozen.	Per gross.
3½ x 4½	$0.15	....
4 x 5	0.20	....
4 x 6	0.25	$2.50
5 x 7	0.35	3.50
5 x 8	0.40	4.00
6½ x 8½	0.60	....
8 x 10	0.75	....
20 x 24	3.00	0.30 per sheet.

Full and explicit directions in each package.

MANUFACTURED BY

BRADFISCH ARISTOTYPE CO.,

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E. & H. T. ANTHONY & CO., Sole Trade Agents.

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ARISTOSCOPE LENSES.

WE have introduced these in order to supply the demand for a first-class Instantaneous Lens, giving rectilinear results at a moderate price.

They are unequaled at the price for Instantaneous Views, Portraits, Landscapes, Architectural Subjects, Dimly Lighted Interiors, Copying, etc., etc.

We urge those who intend purchasing a Lens for such work to try the Aristoscope.

We shall let them stand on their own merits, and have no fears as to the results.

Sizes, prices, etc., as follows:

No.	Size of View.	Size of Group.	Diam.	Equiv. Focus.	Price.
1	4 x 5	3 x 4½	1 inch.	6 inches.	$31 50
2	5 x 8	5 x 6½	1⅜ "	9 "	43 00
3	6½ x 8½	5 x 8	1½ "	11 "	48 50
4	8 x 10	6½ x 8½	1¾ "	14 "	62 50
5	10 x 12	8 x 10	2 "	16 "	78 00
6	12 x 15	11 x 14	2½ "	20 "	107 50
7	16 x 18	14 x 17	3 "	24 "	137 50
8	18 x 22	16 x 18	3½ "	30 "	187 50
9	22 x 25	18 x 22	4 "	34 "	225 00

WIDE ANGLE ARISTOSCOPE LENSES.

THESE are Rectilinear and embrace an angle of nearly 100 degrees, entirely free from distortion and flare. They are supplied with revolving diaphragm and much more rapid than the ordinary Lenses called Wide Angle.

No.	For View.	Back Focus.	Equivalent Focus.	Price.
1	5 x 6½	3½ inches.	4 inches.	$33 00
2	6½ x 8½	4⅝ "	5¼ "	40 00
3	10 x 12	6¼ "	7 "	57 00
4	12 x 15	7½ "	8½ "	77 50
5	16 x 18	11 "	13 "	103 50
6	20 x 22	14 "	15½ "	148 00
7	21 x 25	17 "	19 "	222 00

At the price they have no equal.

NEW YORK, June 29, 1888.

Messrs. E. & H. T. ANTHONY & Co.

GENTLEMEN: Of the 8 x 10 Aristoscope Lens lately purchased of you I can record most satisfactory results. Its strong points appear to embrace everything required of a good lens.

My collection, as you know, includes the best instruments the market affords and the Aristoscope compares favorably with any of them.

I would unhesitatingly recommend it as the best for any one requiring a lens for general use.

Yours very truly,

JOS. R. HUSSON,
360 W. 57th Street, New York.

NEW YORK, February 15, 1888.

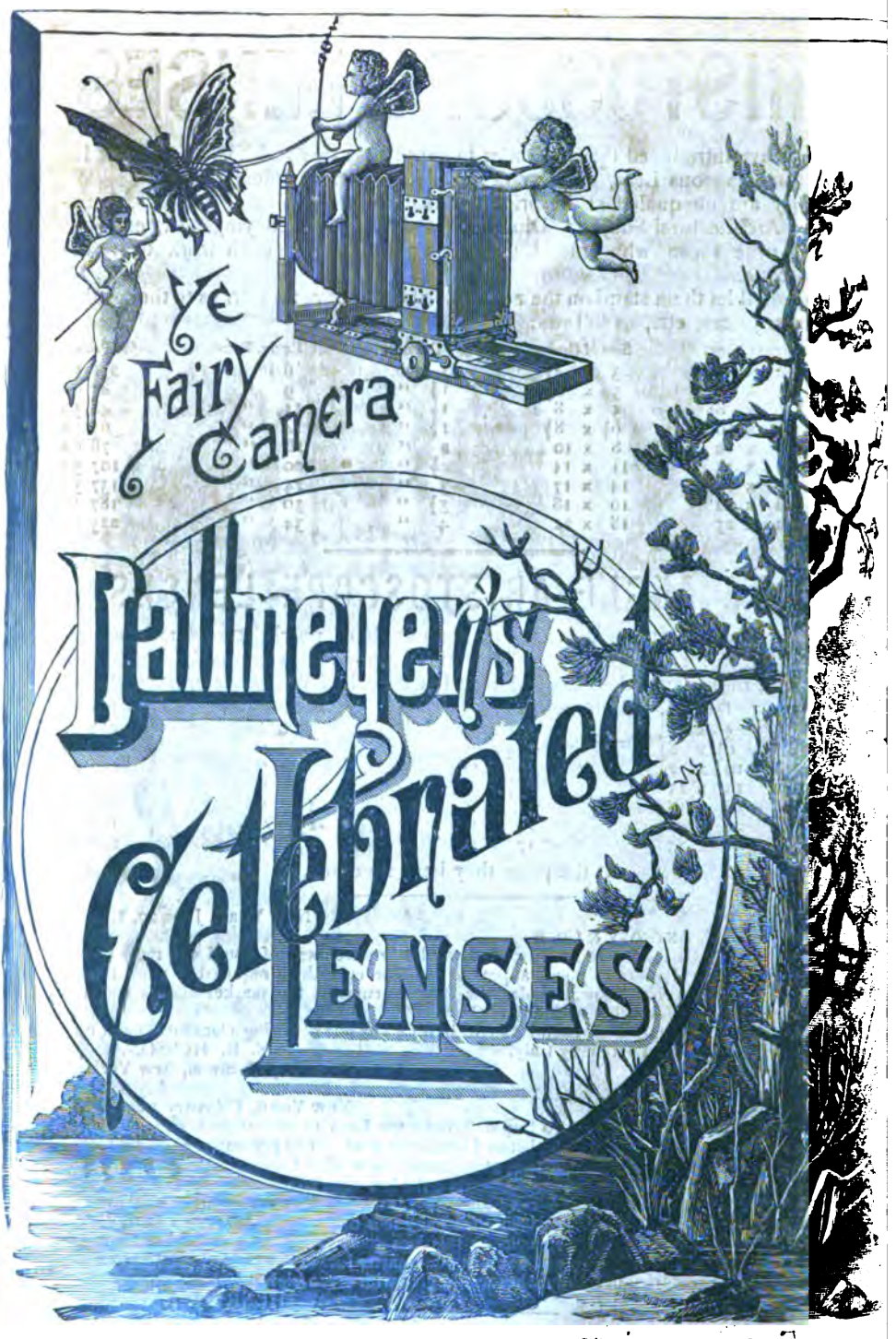
GENTS: I have tested the 8 x 10 Rapid Aristoscope Lens to my satisfaction, and do not hesitate to say that it is one of the best lenses I have ever used. The present requirement of a lens is that it will work with large aperture, as instantaneous work is the leading feature with professionals and amateurs. The larger the aperture the less time is necessary for exposure, and therefore the more rapidly the shutter can be worked, insuring better and sharper negatives of rapidly moving objects. I have never before used any lens that covered as large a field, giving at the same time as great a depth of focus as this lens does, by at least one-third of the aperture. Using this lens with aperture of one and one-quarter inches has yielded as sharp results as the best I have ever tried of other makes would give with seven-eighth-inch aperture.

HENRY J. NEWTON.

Can be ordered through any Stock Dealer.

E. & H. T. ANTHONY & CO.

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